STEEL

PRODUCTION • PROCESSING • DISTRIBUTION • USE

For forty-eight years—IRON TRADE REVIEW

Contents . . . . August 3, 1936

Volume 99 - No. 5

As the Editor Views the News ... 13

Profits of 12 Steel Leaders Up 178 Per Cent in First Half ... 14
July Pig Iron Output Down 3.6 Per Cent ... 17
Federation Debating CIO Case ... 18
Steelworks Operations for the Week ... 18
New High Record in Steel Output by 1937? ... 19
Radio Production at All-Time High ... 20
By-Product Coke Touches Capacity ... 21
First Half Imports Rise 74 Per Cent ... 21
Men of Industry ... 22
Obituaries ... 23
Mirrors of Motordom ... 25
Activities of Steel Users and Makers ... 28
Windows of Washington ... 29

Administration Can Make or Break Robinson-Patman Act—*Editorial* ... 31
The Business Trend—Charts and Statistics ... 32

Using Refractory Concrete in Annealing Furnaces ... 34
Convention Exhibit—1936 Model ... 38
Progress in Steelmaking ... 43
Power Drives ... 44
Great Lakes Exposition ... 46
Welding, etc. *Robert E. Kinkead* ... 49
Surface Treatment and Finishing ... 50
Maintenance of Dust Control Systems ... 58
New Equipment Descriptions ... 61

Market Reports and Prices ... 67-88
New Construction and Incorporations ... 89
Index to Advertisers ... 114

EDITORIAL STAFF

E. L. SHANER, *Editor*

E. C. KREUTZBERG
Development Manager

A. J. HAIN, *Managing Editor*

A. H. ALLEN, *Engineering Editor*

ASSOCIATE EDITORS

E. F. ROSS — J. D. KNOX
G. H. MANLOVE — DONALD R. JAMES
JOHN A. CRONIN — W. L. HAMMERQUIST

New York B. K. PRICE-L. E. BROWNE
Pittsburgh . . . E. A. FRANCE JR.
Chicago . . . . . W. G. GUDE
Washington . . . . L. M. LAMM
London . . . . VINCENT DELPORT

BUSINESS STAFF

GEORGE O. HAYS, *Business Manager*
R. T. MASON, *Circulation Manager*

New York . . . E. W. KREUTZBERG, J. W. ZUBER
Pittsburgh . . . . S. H. JASPER, D. C. KIEFER
Chicago . . . . . L. C. PELOTT, W. F. O'DELL
Cleveland . . . . . R. C. JAENKE, C. H. BAILEY

Member Audit Bureau of Circulations; Associated Business Papers Inc., and National Publishers Association.

Published every Monday. Subscription in the United States, Cuba, Mexico and Canada, one year $4, two years $6; European and foreign countries, one year £2.

Entered as second class matter at postoffice at Cleveland, under the Act of March 3, 1879.

Copyright 1936 by Penton Publishing Co.

Published by the PENTON PUBLISHING CO., Penton Building, Cleveland, O.
John A. Penton, *Chairman of Board;* **C. J. Stark,** *President and Treasurer;*
E. L. Shaner, J. R. Dawley and D. M. Avey, *Vice Presidents;* **R. T. Mason,** *Secretary.*

BRANCH OFFICES:

New York . . . . 220 Broadway
Chicago . . . Peoples Gas Building
Pittsburgh . . 1650 Koppers Building
San Francisco . . . 2413 Milvia St. Berkeley, Calif., Tel. Berkeley 7354W
Washington . . National Press Building
Cincinnati . . 418-420 Sinton Hotel
London . . . . . Caxton House Westminster, S. W. 1
Berlin . Berlin, N. W. 40, Roonstrasse 10

Basic properties that elude even the X-RAY

In recent years the accomplishments of metallurgical science in solving the steel problems of industry have been little short of amazing. New analyses and new processes in the steel world have contributed much to the up-turn in business. Throughout this period of rapid progress Ludlum, pioneer in electric furnace steel, has continued to pioneer . . . In fine steels there are always properties that neither the X-ray nor other modern laboratory apparatus can reveal.

These all-important basic properties are the result of the careful maintenance of standards, the training and experience of men, the attitude toward customers' welfare, and the service rendered—in deliveries—in technical advice—in Quality Control.

Executives or engineers who use, buy or specify steels may well investigate these properties as well as the price equation or the properties determined by X-ray and other standard tests.

When choosing your supply source why not ask such questions as—

1. Do you specialize in fine steels?
2. What background of experience do you offer?
3. Are you a pioneer—constantly developing new products for special needs?
4. Can we receive competent, impartial advice on metallurgical and fabricating problems?
5. What is the attitude of the men in your mill toward your product and your customers?
6. Does your sales policy fit your service to customer needs?
7. Will you give us all the facts at your disposal?

New Blue Sheet on Super Panther and Panther Special High Speed Steels is now available. Use the coupon.

Research Dept., Ludlum Steel Co.
Watervliet, N. Y.

Kindly send me your new Blue Sheet on Panther High Speed Steels.

Name .....

Company .....

Address .....

S-8-3-36

LUDLUM

FINE STEELS SINCE 1854

TOOL · STAINLESS · CARBON · ALLOY

As the Editor Views the News

IN ADDRESSING the National Press club Friday, William Green declared that the fight between A. F. of L. and CIO (p. 18) is not industrial versus craft unionization but democratic versus minority rule. This is true, but we wonder if it has occurred to Mr. Green that in establishing himself as the defender of democratic rule within his federation of labor unions, he is assuming a role that is identical with that held by industrial employers. They too are defenders of democratic rule. They are just as anxious to preserve democratic rule for their employes as Mr. Green is to protect democratic rule for his member unions.

• • •

Laid Low by Own Medicine

The internal feud in A. F. of L. is due to the fact that John Lewis and CIO believe in and practice the new deal policy of stacking the cards to favor the minority. The new deal party's labor plank calls for protecting employes against coercion—but only coercion by employers, not coercion by minority labor groups. Mr. Green's trouble is that some of his own people have taken the racketeering principle of minority rule from his own labor policy and have turned it against him in his own camp. Thus he is the unfortunate victim of his own medicine.

• • •

Green Needs Landon Policy

The feud within the ranks of professional labor could have been avoided if everybody concerned had been willing to play the game fairly. The only square way is to permit every individual to voice his own opinion free from interference from any source. Had A. F. of L. followed this policy consistently, John Lewis never would have had a chance to pit his minority strength against the majority. As it is, Mr. Green on one hand is urging his unions to force their minority will against employes who in the majority do not wish to join a professional union, while on the other hand he is complaining that Mr. Lewis has employed these same unsavory tactics against him. Mr. Green's salvation lies in a policy that protects every man against interference from any source. In short, what Mr. Green needs is Candidate Landon's labor policy.

• • •

Editorial Men Win Promotion

Reference to STEEL's masthead (p. 11) will reveal a number of promotions in this publication's editorial staff. E. C. Kreutzberg, formerly eastern manager and more recently engineering editor, becomes development manager, in which position his broad experience will be applied to the co-ordination of certain phases of editorial, circulation and advertising activities. A. J. Hain, with an extensive background of experience in news and market editing becomes managing editor, in which post his mature judgment and executive ability will be a distinct asset to STEEL. A. H. Allen, who as associate editor has been handling an increasing proportion of STEEL's technical articles, has been appointed engineering editor.

• • •

Staff of 22 Works for You

Associate editors include Erle F. Ross, John D. Knox and George H. Manlove—well known to veteran readers of STEEL—and Donald R. James, recently acquired from Associated Press; W. L. Hammerquist, specialist in surface finishing; and John A. Cronin, leading editorial authority on the subject of materials handling. In the field, resident associate editors are B. K. Price and L. E. Browne in New York; Edward A. France Jr. in Pittsburgh; W. G. Gude in Chicago; L. M. Lamm in Washington and Vincent Delport in London. In addition we boast a roster of promising juniors in Cleveland, including John H. Caldwell, George Griswold, Robert L. Hartford, Joseph C. Sullivan and LaVerne Nock—aspirants to important posts in future years. D. S. Cadot is our reliable aide on business charts, artwork and editorial layout. In toto we are 22 enthusiastic workers striving to make STEEL your No. 1 business publication.

E. L. Shaner

Profits of 12 Steel Leaders Up 178% in First Half

TWELVE leading producers of steel, representing 56,636,000 gross tons of ingot capacity, or 83 per cent of the country's total, report an aggregate profit of $41,281,010 for the first half of 1936, or 178 per cent over the aggregate profit for these 12 in the first half of 1935.

On this basis, the indicated net for the entire industry—with a total ingot capacity of 68,475,500—this year was $49,736,156.

In the first half of 1935 the identical 12 producers reported earnings of $14,807,406. The indicated profit for the entire industry for that period was $20,800,000.

Production of steel ingots in the first half of 1936 was 21,326,335 gross tons, compared with 16,042,651 tons in the first half last year, a gain of 33 per cent.

Per Ton Profit $2.33

Indicated average profit per ton of ingots produced by the industry in the first half this year is $2.33, compared with an indicated $1.23 in the first half of 1935, an increase of 89.4 per cent.

Estimated individual profits per ton based on each company's ingot capacity were much higher than last year. Inland Steel Co. leads the list with $2.60 per ton. National Steel Corp. is second with $2.31; Youngstown Sheet & Tube Co. third, with $1.50. United States Steel Corp. was seventh, with 61 cents; Bethlehem Steel Corp., eleventh with 42 cents.

Largest net profit for the first half, regardless of size of the company, was reported by United States Steel Corp., $16,238,727. Last year National Steel's was largest, but this year Inland came in ahead with $5,232,823, while National Steel fell into third place, with $5,182,714. Youngstown Sheet & Tube Co., which last year reported a deficit of $471,012, this year came back strong, profit amounting to $4,485,388. Not one of the 12 companies this year reported a deficit; last year among the 12 four were in the red.

National Steel's profit this year was less than for the period last year—$5,182,714 comparing with $6,315,995. Additional official reports from other steel producers are expected early this week.

Steel financial reports emphasize some uncertainties which confront the industry with respect to the surtax on undistributed profits. Practically all note that these being interim statements, no provisions have been made for surtaxes.

FIRST EARNINGS ON COMMON IN 5 YEARS FOR U. S. STEEL CORP.

The great increase in demand for heavy materials was reflected in United States Steel Corp.'s statement, which showed earnings on its common stock for the first time in five years.

Net income of $12,862,423 for the second quarter, after all charges other than preferred dividends, compared with $3,376,304 in the first quarter of this year, and a deficit of $762,493 in the second quarter of 1935. For the six months ending June 30 net income totaled $16,238,727, against a deficit of $2,936,294 in the corresponding 1935 period.

In increasing the preferred dividend to $1 a share, double the quarterly rate paid since February, 1933, directors pointed out that from Oct. 1, 1931, to July 1, 1936, the corporation had incurred a deficit from operations totaling $116,286,000, while dividends paid in that period totaled $54,791,000. During the six months ending June 30 expenditures for modernization and in payment of maturing subsidiary companies' bonds and mining royalty notes totaled $29,663,857.

Net Income Equals 75 Cents

Net income for the second quarter was equal to 75 cents a share on the 8,703,252 shares of common stock. In the first quarter 94 cents was paid of the full $1.75 due on the 3,602,811 shares of 7 per cent preferred.

The corporation's shipments of 2,850,069 tons of finished products for the second quarter of this year compared with 1,768,751 tons in the same period of 1935. For the six months ending June 30 shipments totaled 5,031,350 tons, compared to 3,553,999 tons in the corresponding 1935 period.

Net income per ton of finished products was $3.23 for the first six months this year, against a deficit of $0.82 per ton in the first half of 1935.

Production and shipments reached the highest tonnage total in any quarter since that ending June 30, 1930. Operations for the second quarter measured by finished product

Marked Improvement in Steel Producers' Financial Statements

	Second Quarter 1936	First Quarter 1936	Second Quarter 1935	First Half 1936	First Half 1935	Ingot Capacity gross tons
United States Steel Corp.	$12,862,423	$3,376,304	$ 762,493*	$16,238,727	$2,936,294*	26,657,000
Bethlehem Steel Corp.	3,431,391	603,065	1,800,909	4,034,456	1,193,611	9,360,000
Republic Steel Corp.	2,661,062	361,031	922,329	3,022,094	2,756,564	6,053,000
Jones & Laughlin Steel Corp.	1,115,733	933,279*	44.412	182.454	750,377*	3,660,000
Youngstown Sheet & Tube Co.	2,588,089	1,897,299	124,758	4,485,388	471,012*	3,120,000
National Steel Corp.	2,805,570	2,377,144	2,948,362	5,182,714	6,315,995	2,240,000
Inland Steel Co.	3,298,191	1,934,632	2,392,510	5,232,823	4,858,306	2,000,000
Wheeling Steel Corp.	871,288	10,922	668,300	882,199	1,602,871	1,750,000
Otis Steel Co.	751,674	148,676	435,493	900,350	1,387,855	828,000
Gulf States Steel Co.	110,544	93,929	66,663*	204,473	36,514*	480,000
Sharon Steel Corp.	268,335	212,615	.....	480,950	540,866	450,000
Ludlum Steel Co.	271,369	163,012	147,063	434,382	345,535	38,000
FINISHING CAPACITY ONLY						
Acme Steel Co.	$513,774	$391,853	$338.348	$905.627	$935,338	.....
Superior Steel Corp.	58,726	29,088	31,829*	87,814	6,682	.....
PIG IRON CAPACITY ONLY						
Interlake Iron Corp.	48,978*	17,301	345,221*	31,677*	414,773*	1,215,000
Virginia Iron, Coal & Coke Co.	60,508*	21,447*	29,555*	81,955*	20,605*	200,000

output averaged 60.8 per cent of total capacity.

Details of the corporation's statement pertaining to payrolls:

	1936	1935
No. of employes	208,096	193,199
Total payroll	$152,835,471	$122,149,091
Aggregate No. of hours worked	209,155,310	167,556,511
Average hours worked per employe per mo.	167.5	144.5
Average earnings per employe per hour	$0.73	$0.73

BETHLEHEM'S PAYROLLS LARGER THAN IN 1929

Bethlehem Steel Corp. employed more men in the first half this year, 81,706, and paid them higher wage rates than in 1929, E. G. Grace, president, said in releasing the company's financial report. The number on payrolls exceeded that of 1929 by several thousand.

He figured Bethlehem's losses in the 5½ years of the depression at $20,000,000, and during that time Bethlehem paid out in wages $375,000,000.

Bethlehem mill employes in June worked an average of 39.9 hours a week, and in the entire first half an average of 37.8 hours. In 1929 they worked 48 to 49 hours a week.

This June 6000 mill workers took vacations at a cost to the company of $164,000. He estimated that the vacation program this year will cost the company $1,000,000.

Bethlehem's composite billing price for the second quarter was $4 lower than in 1929, and the price for July, allowing for the advances that went into effect at the beginning of this quarter, was at least $3 lower than 1929.

Unfilled bookings at the end of the second quarter of $89,561,632 represented a new high for at least five years. Net profits for the period of $3,431,391 compared with $7,766,000, for the corresponding quarter of 1929. The corporation showed earnings in the second quarter equal to 49 cents on the common stock; for the first half, 17 cents.

Mr. Grace predicted that Bethlehem's ingot rate of slightly more than 66 per cent in the second quarter will be fully sustained in the current quarter.

The company will spend $13,000,000 this year in capital improvements. Of this, $6,800,000 was spent in the first half.

BEST SECOND QUARTER SINCE 1930 FOR JONES & LAUGHLIN

Jones & Laughlin Steel Corp., Pittsburgh, reports net profit of $1,115,733, or $1.90 a preferred share, in the second quarter, which was the best second quarter showing since 1930 when $3,403,687 was earned.

For six months ended June 30, the company reports net income of $182,454, compared with loss of $750,377 in the first half of 1935. Operations in the first quarter were hampered by flood conditions, but the company due to its experience set up a larger contingency reserve.

Details of the second quarter showing find total earnings after deduction of operating expenses of $3,011,693, which after deduction of $1,548,166 for depreciation and $347,794 in bond interest left the profit of $182,454.

Net profit for the first half of 1936 compares with net losses for the corresponding 1935 period of $750,377, $1,038,272 in the 1934 period, and $3,472,446 in the 1933 period.

NATIONAL STEEL CORP.

National Steel Corp. reports net income after all charges, for the half-year ending June 30, 1936 of $5,182,714.79, equal to $2.40 per share on 2,156,977 outstanding shares of capital stock.

These earnings compare with net earnings for the first six months of 1935 of $6,315,995.20, equal to $2.93 per share. Net earnings for the second quarter of this year were $2,805,570.10, equal to $1.30 per share, compared with earnings for the second quarter of 1935 of $2,948,362.29, equal to $1.37 per share.

REPUBLIC STEEL CORP.

Consolidated net profit of Republic Steel Corp. and subsidiaries for the quarter ended June 30 was $2,661,062.95, and brought net earnings for the first half to $3,022,094.34, after all charges. This compares with $2,756,563.57 for the first half of 1935.

Charges included non-recurring interest and guaranteed dividends amounting to $431,503.76 for the half of 1936. The company has made provision for federal taxes estimated for the first half at $772,793.42.

Otis Steel Co. reports a net profit after all charges of $751,674 for the second quarter. This compares with $435,493 in the second quarter, 1935. Net profit for the half-year ended June 30 was $900,350. This statement makes no provision for federal surtax on undistributed earnings but does include provision for federal income tax estimated at $133,753 for the half year.

After deduction of federal income taxes at present rates but not including any deduction for the tax on undistributed earnings, Ludlum Steel Co.'s consolidated net earnings for the

United States Steel Corp.'s Financial Report

	Quarter ending June 30, 1936	Six Months ending June 30, 1936
Earnings and income after deducting all expenses, including ordinary repairs and maintenance, also estimated state, local and federal taxes (other than surtax on undistributed profits*) and reserves for contingencies, but exclusive of charge for proportion of overhead expenses shown below	$29,227,034	$46,891,630
Charges and allowances for depletion, depreciation and obsolescence	14,504,794	26,994,370
Balance	$14,722,240	$19,897,260
Less, net loss from disposal of sundry property assets and securities	75,000	51,000
	$14,647,240	$19,846,260
Less, proportion of overhead expenses of the Lake Superior Iron Ore properties normally included in the value of the season's production of ore carried into inventories, but which because of curtailment in tonnage of ore to be mined and shipped in 1936 is not so applied	550,000	1,150,000
Net income before interest charges	$14,097,240	$18,696,260
Interest charges on outstanding bonds and mortgages:		
Of subsidiary companies	1,231,454	2,450,808
Of United States Steel Corp.	3,363	6,725
Net income available for dividends	$12,862,423	$16,238,727
Dividends on stock of United States Steel Corp.:		
Preferred stock:		
For the quarter ending June 30, 1936 (1%)**	3,602,811	
For the six months ending June 30, 1936 (1½%)		5,404,216
Surplus for the quarter and six months ending June 30, 1936	$ 9,259,612*	$10,834,511*

*The surtax on undistributed profits, which is imposed under the revenue act of 1936, must necessarily be based upon the financial results for the full year of 1936. Accordingly, no determination of same can be made until the annual figures are known.

**Dividends payable: Preferred, Aug. 29, 1936, to stockholders of record Aug. 1, 1936.

Shipments of Finished Steel Products

For the quarter ending June 30, 1936	2,850,069 tons
For the six months ending June 30, 1936	5,031,350 tons

second quarter of 1936 amounts to $271,369.44. After deducting payment of the dividend accruing from April 1 to May 4 on the then outstanding preferred stock, the balance represents approximately 55 cents a share available for dividends on the 495,477 shares of common stock outstanding June 30. For the second quarter of 1935, the parent company's net earnings, after federal income taxes, were $147,063.68.

For the first half of 1936 the company's consolidated earnings, after federal income taxes amounted to $434,381.72, compared with $345,535.09 for the parent company for the first half of 1935.

Cleveland-Cliffs Iron Co., Cleveland, reports net income of $765,099 for the second quarter of 1936, compared with net loss of $72,180 in the first quarter.

Vanadium Alloys Steel Co., Pittsburgh, has declared a dividend of 60 cents a share on its capital stock, payable Sept. 2 to Aug. 10 record. In the preceding quarter company paid 50 cents per share.

DIVIDENDS DECLARED

Allegheny Steel Co. has declared a dividend of 25 cents a common share and an extra dividend of 15 cents, both payable Sept. 16 to Sept. 1 record. Usual quarterly preferred of $1.75 was declared payable Sept. 1 to Aug. 15 record.

United Engineering & Foundry Co., Pittsburgh, has declared a 50-cent common dividend, payable Aug. 18 to Aug. 8 record, which was an increase from the preceding quarter when 37½ cents was paid. Regular quarterly preferred of $1.75 was named payable as of the same dates. Directors held their quarterly meeting July 28 on a special train inspecting plants at Canton, Youngstown, and Wooster, O.

Meetings

SUMMER meeting of the refractories division of the American Ceramic society has been announced for Sept. 4-5 at the Bedford Springs hotel, Bedford Springs, Pa. Plant trips are being arranged for those arriving on Sept. 3. The program for Sept. 4 includes a luncheon, a technical session, a banquet and a dance; Sept. 5 will be devoted to a golf tournament.

Checker brick and regenerators will be the subject discussed at the technical session. J. D. Keller, research engineer, Carnegie Institute of Technology, Pittsburgh, will present a paper on "Influence of Material, Shape and Size of Checker Brick on Regenerator Performance," and William C. Buell Jr., consulting engineer, Cleveland, will contribute a paper on "Performance of Checker Brick Under Various Operating Conditions." Numerous discussions incorporating operating experiences in the steel and glass industries, are under preparation.

Dr. W. C. Rueckel, 1424 Koppers building, Pittsburgh, is chairman of the program committee.

SHEET METAL ASSOCIATION TO REPORT ON DISTRIBUTION

National Association of Sheet Metal Distributors will hold its twenty-fifth annual meeting at the Marlborough-Blenheim hotel, Atlantic City, N. J., Oct. 20, during the annual convention of the National Wholesale Hardware association with which it is affiliated.

Specially appointed committees on galvanized and black sheets and corrugated roofing, tin and terne plate, eaves trough and conductor pipe, and prepared roofing are making investigations of conditions surrounding distribution of the various lines and will report with recommendations as to the manner in which distribution of these lines may be placed upon a more satisfactory basis. Members also will be advised as to the manner in which the Robinson-Patman act, the social security act, and the Walsh-Healey act will affect their businesses.

George A. Fernley, 505 Arch street, Philadelphia, is secretary of the association.

PRIVATE INDUSTRY GIVES POWER CONFERENCE $100,000

Two contributions, $75,000 from the Edison Electric institute and $25,000 from the National Electrical Manufacturers association, have been made to the third World Power conference, according to Floyd L. Carlisle, chairman, Consolidated Edison Co., New York, and chairman of the finance committee of the conference.

This sum, combined with an appropriation of $75,000 voted by congress, will be used to finance the conference, which is expected to draw about 3000 delegates to Washington Sept 7 to 12.

Consumers' Earnings Show Average 66 Per Cent Gain

AVERAGE earnings of 32 identical companies among equipment manufacturers and other leading iron and steel consumers show earnings up 66 per cent for the first half of 1936, compared with the first half of 1935. These companies are included in the following tabulation. All figures are profit except where asterisk denotes loss.

	Second quarter, 1936	Second quarter, 1935	First half, 1936	First half, 1935
Edward G. Budd Mfg. Co., Philadelphia.	$339,585	$127,394	$685,836	$278,984
Budd Wheel Co., Philadelphia	310,088	224,640	518,693	516,561
Caterpillar Tractor Co., Peoria, Ill.	2,544,312	1,823,376	4,481,091	2,908,153
National Malleable & Steel Castings Co.	471,338	.....	657,393	.....
Harbison-Walker Refractories Co.	807,700	316,200	1,348,800	783,800
Pittsburgh Screw & Bolt Corp.	336,466	*714	501,522	*83,932
Spicer Mfg. Corp., Toledo, O.	387,936	114,503	694,716	249,449
Minneapolis-Honeywell Co.	479,524	237,312	674,800	271,170
Mullins Mfg. Co., Salem, O.	117,265	158,021	310,603	284,124
Bliss & Laughlin Inc., Harvey, Ill.	.....	.....	270,372	219,782
Eaton Mfg. Co., Cleveland	751,903	436,688	1,335,285	1,041,960
Transue & William Steel Forging Corp.	41,456	21,556	188,389	182,528
Parker Rust Proof Co.	283,812	.....	134,205	.....
Westinghouse Air Brake Co.	837,060	78,878	1,350,673	*95,372
Rustless Iron & Steel Corp., New York	80,103	.....	134,122	96,968
United States Pipe & Foundry Co.	.....	.....	199,239	468,336
McCord Radiator & Mfg. Co., Detroit	97,598	53,479	220,719	96,372
Young (L. A.) Spring & Wire Co., Detroit	739,104	596,643	1,166,352	1,067,575
Marion Steam Shovel Co., Marion, O.	85,590	*71,263	31,487	*190,815
White Motor Co., Cleveland	.....	.....	287,421	*851,537
Eastern Malleable Iron Co.	29,237	.....	32,751	87,503
National Acme Co., Cleveland	168,113	55,424	308,129	86,428
Ex-Cell-O Aircraft & Tool Corp., Detroit	131,655	114,169	133,877	207,281
U. S. Hoffman Mach. Corp., New York	231,592	80,645	312,238	112,351
Wickwire Spencer Steel Corp.	120,998	*89,142	*653	164,924
Borg-Warner Corp., Chicago	1,882,763	1,627,486	3,458,125	3,011,352
Federal Screw Works, Detroit	6,606	*52,487	*2,892	*35,726
Michigan Steel Tube Products Co.	.....	.....	232,231	237,782
Lunkenheimer Co., Cincinnati	.....	.....	274,783	92,737
General Motors Corp., Wilmington, Del.	88,108,372	52,219,467	140,572,546	83,729,838
Midland Steel Products Co., Cleveland	626,473	410,725	1,037,468	653,500
Bucyrus-Erie Co., So. Milwaukee, Wis.	.....	.....	469,879	18,390
General Electric Co., Schenectady, N. Y.	9,505,494	6,150,499	16,592,324	11,541,429
Thompson Products Inc., Cleveland	355,539	243,043	574,059	393,126

Dedicates $300,000 Metallurgical Laboratories

Parker-Kalon Corp., 200 Varick street, New York, formally opened with an inspection tour July 30 its new $300,000 mechanical and metallurgical laboratories, considered among the finest in the country, for control of the quality of its screw products.

Dr. James Barnes, Franklin institute, Philadelphia, paid tribute to the laboratories' unusual facilities and methods. A micro-comparator, a measuring device developed by the company for checking accuracy of

gage blocks, was presented to Dr. Barnes by Louis Goldburg, president of the Kalon company. It will be on permanent exhibition at Franklin institute.

Addresses also were made by Charles S. Trott, general manager of sales, and Heyman Rosenberg, vice president in charge of manufacturing. Mr. Rosenberg was the recipient of his image in bas-relief from the employes' association, the presentation being made by Harry Cooper, president of the association.

W. A. Bonitz Heads Pressed Steel Car Co., Reorganized

Pressed Steel Car Co. Inc., successor to the former Pressed Steel Car Co., has commenced functioning under its reorganized setup.

Walter A. Bonitz, formerly trustee, has been named president and director, and the following other directors have also been named: T. W. Friend, John F. Casey, Harry J. Gearhart, and Walter J. Curley, who with Mr. Bonitz are all of Pittsburgh; Lester N. Selig and Sam Laud, Chicago, and Cyril J. C. Quinn, New York.

Mr. Selig was elected chairman of the board and John F. MacEnulty of New York, and C. J. Graham of Pittsburgh, vice presidents, with Harry J. Gearhart, secretary and treasurer.

The company's general offices are being moved from New York to the Grant building, Pittsburgh.

JULY IRON PRODUCTION

	No. in blast last day of July	No. in blast last day of June	Total tonnage Merchant	Total tonnage Nonmerchant
Ohio	35	32	91,972	502,001
Penna.	48	46	78,105*	745,384*
Alabama	10	10	77,736	62,051
Illinois	13	13	66,817	188,722
New York	12	12	64,288	140,569
Colorado	1	2		
Indiana	12	12	4,950*	377,622
Maryland	3	4		
Virginia	1	1		
Kentucky	2	1		
Mass.	1	1		
Tenn.	1	1		
Utah	1	1	22,612*	162,708
West Va.	3	3		
Michigan	4	4		
Minnesota	1	1		
Missouri	0	0		
Total	148	144	406,480*	2,179,057*

*Includes ferro and spiegeleisen.

Steel Founders to Move

Steel Founders' Society of America, with present headquarters in the Grayton building, 420 Lexington avenue, New York, on Aug. 6 will move to new offices at 920 Midland building, Cleveland.

July Iron Output Down 3.6 Per Cent; 4 More Stacks In

ALTHOUGH active blast furnaces in the United States in July rose to the highest total since June, 1930, average daily production of coke pig iron slipped off 3.6 per cent from the June output, which, incidentally, had established the highest point since June, 1930.

Operating furnaces on July 31 totaled 148, a gain of 4 over the 144 making iron on June 30. Active stacks in June, 1930, numbered 162.

According to statistics compiled by STEEL from producers' reports involving estimation for the last one or two days of the month, average daily production for July was 83,404 gross tons, which, compared with the 86,551-ton rate of June, was a drop of 3147 tons. The July rate fell below the May figure of 85,795 tons, but stands as the third highest for the year. In July, one year ago, production was 49,043 tons.

Total production for July was 2,585,537 gross tons, a loss of 10,991 tons, or 0.42 per cent, from the June total of 2,596,528 tons. This drop was encountered in spite of the fact that July was a one-day longer month than June. Output in July, 1935, was 1,520,340 tons.

Relating production to capacity, operations in July were at the rate of 61.3 per cent. This compares with 63.6 per cent in June, 63.1 per cent in May and 35.2 per cent in July, a year ago.

The 148 active blast furnaces on July 31 compares with 92 in July, 1935. During the month, 6 nonmerchant or steelworks stacks resumed and 2 were blown out or banked. No changes in merchant stacks were reported.

Furnaces resuming in July were: In Ohio: Portsmouth, Wheeling Steel Corp.; two Youngstown, Youngstown Sheet & Tube Co. In Pennsylvania: Bethlehem E, Bethlehem Steel Co.; one Aliquippa, Jones & Laughlin Steel Corp. In Kentucky: Norton, American Rolling Mill Co.

Stacks blowing out or banking were: In Maryland: Maryland B, Bethlehem Steel Co. In Colorado: Minnequa D, Colorado Fuel & Iron Co.

The Emporium, Pa., blast furnace of the Emporium Iron Mfg. Co. is being dropped from the list, which reduces the total number of potential furnaces in the United States from 253 to 252. The Emporium stack, last operated in February, 1926, is no longer in serviceable condition. It was built in 1887-88, rebuilt in 1921-22, and had an annual capacity of 60,000 tons of foundry iron.

AVERAGE DAILY PRODUCTION

Gross Tons

	1936	1935	1934	1933
Jan.	65,461	47,692	39,537	18,348
Feb.	63,411	57,675	45,385	19,752
Mar.	66,004	57,120	52,438	17,484
Apr.	80,316	55,719	57,873	20,786
May	85,795	55,986	66,370	28,784
June	86,529	51,949	64,563	42,165
July	83,404	49,043	39,630	58,108
Aug.		56,767	34,199	59,137
Sept.		59,009	29,969	50,264
Oct.		63,818	30,689	43,824
Nov.		68,876	31,930	36,124
Dec.		68,242	33,161	38,456
Ave.	75,894	57,694	43,774	36,223

RATE OF OPERATION

(Relation of Production to Capacity)

	1936[1]	1935[2]	1934[3]	1933[4]
Jan.	48.2	34.2	28.3	13.3
Feb.	46.6	41.4	32.5	14.3
Mar.	48.5	41.0	37.5	12.7
Apr.	59.1	40.0	41.4	15.1
May	63.1	40.2	47.5	20.9
June	63.6	37.2	46.3	30.6
July	61.3	35.2	28.4	42.4
Aug.		40.7	24.5	42.8
Sept.		42.5	21.5	36.4
Oct.		45.8	22.1	31.8
Nov.		49.5	22 8	26.2
Dec.		49.0	23.7	27.9

[1]Based on capacity of 49,777,893 gross tons, Dec. 31, 1935; [2]capacity of 50,845,741 gross tons, Dec. 31, 1934; [3]capacity of 50,975,561 tons, Dec. 31, 1933; [4]capacity of 50,313,975 tons, Dec. 31, 1932. Capacities by American Iron and Steel institute.

MONTHLY IRON PRODUCTION

Gross Tons

	1936	1935	1934
Jan.	2,029,304	1,478,443	1,225,642
Feb.	1,838,932	1,614,905	1,270,792
Mar.	2,046,121	1,770,990	1,625,588
Apr.	2,409,474	1,671,556	1,736,217
May	2,659,643	1,735,577	2,057,471
June	2,595,882	1,558,463	1,936,897
July	2,585,537	1,520,340	1,228,544
Tot. 7 mo.	16,165,539	11,350,274	11,081,152
Aug.		1,759,782	1,060,187
Sept.		1,770,259	899,075
Oct.		1,978,379	951,353
Nov.		2,066,293	957,906
Dec.		2,115,496	1,028,006
Total		21,040,483	15,977,679

Democratic Rule, Green's Motto

PEACE or war within the ranks of the American Federation of Labor, over steel and industrial organization policies, was to be determined in Washington Monday—the day set by the A. F. of L. executive council for "trial" of the CIO unions.

As the CIO declined to stand trial, the issue will be squarely up to the council, whether to expel the 12 unions, to compromise, or again to postpone the meeting.

In Washington the opinion prevailed that the meeting, if held, will prove to be a farce. Sufficient pressure, it is believed, has been brought against William Green, including that from official government sources, to avoid, or at least postpone, expulsion.

Green in addressing the National Press club, Washington, Friday, insisted that the fight between the A. F. of L. and CIO is not industrial versus craft unions but "democratic versus minority rule".

"No institution can live," he said, "without majority rule.

"I am going to try to heal the wound, and I would make any sacrifice, even to giving up my present position."

Although the steel plant labor situation was quiet last week, it was apparent that the CIO has not relaxed its organization activities. Sidney Hillman, committee member, announced that the 12 unions had agreed to assess themselves for another $500,000, if necessary.

The first issue of *Steel Labor*, an eight-page newspaper published by the CIO came off the press. It featured such stories as "The Steel Drive Gets Going," a department called, "F. D. R. Says," "Pennsylvania State Authorities Won't Harass Orderly Labor Activities," and "Fired Jones & Laughlin Men Form Honor Roll Committee." One other department is called "The Institoot," in which most of the presidents of the leading steel companies are referred to by their first names, in a derogatory vein.

Publicity releases now are being sent regularly to the daily newspapers by the CIO, those last week being attached to copies of steel companies' employment rules, with comments by the CIO making it appear that those rules forbid workers joining outside unions on penalty of dismissal.

The CIO claimed "a major victory in the steel drive" in the settlement of the strike at the Sterling, Ill., plant of Northwestern Barb Wire Co., employing 1400. P. W. Dillon, president, informs STEEL that the company agreed to deal with the Amalgamated to represent those employes who desire to be represented by the Amalgamated, and will deal with any other representative of employes, or with individuals. A 10 per cent wage advance was granted "to bring our basic rate to 41 cents, which is in line with other wire mills in our district."

District Steel Rates

Percentage of Open-Hearth Ingot Capacity Engaged in Leading Districts

	Week ended Aug. 1	Change	Same week 1935	Same week 1934
Pittsburgh	69	+ 2	41	19
Chicago	71	+ 1	52	32
Eastern Pa...	50½	None	31½	22
Youngstown...	78	None	53	35
Wheeling	92	+ 3	76	25
Cleveland	82	— 3	54	32
Buffalo	81	— 3	37	32
Birmingham...	58	None	31½	0
New England	78	None	25	38
Detroit	100	None	94	76
Cincinnati	76	None	†	†
Colorado	63	.....	†	†
Average....	71½	+ 1	47	26½

†Not reported.

Production

STEELWORKS operations were up 1 point to 71½ per cent last week, equal to the June 27 rate, highest for this year. Pittsburgh district registered a 2-point increase, bringing the average there to 69 per cent.

In most districts little or no change is expected this week. Details by districts follow:

Chicago—Recovered 1 point to 71 per cent, equaling the previous best rate for the year to date. Operations will continue into August near their current level. Blast furnace schedules are steady, with 25 of 41 stacks active.

Central eastern seaboard — Ingot production remains unchanged at 50½ per cent. Some let-down in output, although not sharp is expected this month. In finished steel, the plate department of the Alan Wood Steel Co., Conshohocken, Pa., resumed operations last Wednesday, following a week's suspension for vacations for employes in that division.

Buffalo — A decline of 3 points to 81 per cent in this district last week was attributed to the necessity for repairs on furnaces rather than any great decline in business. Indications point to a further drop this week, and the rate may go to 79 per cent.

Colorado — With ten furnaces in operation, last week's rate was 63 per cent of capacity.

Detroit — Unchanged at 100 per cent with all 17 open-hearth furnaces still on active schedule. One producer is operating nine furnaces, and the other eight.

Wheeling — Up 3 points to 92 per cent of capacity last week for the fifth consecutive weekly gain. Of 37 open-hearth furnaces in this district, 34 were on schedule last week, compared with 33 the week preceding and 29 three weeks ago.

Pittsburgh — Up 2 points to 69 per cent of capacity through last week, with the Corporation plants here at 67 per cent of capacity and the independents at an average of 74 per cent. The average for independent producers features a rate of 70 per cent by the leading interest in this group and near-capacity operations by two mills smaller in size. A six-year high in active steelworks blast furnaces was set here last week when the blowing in of another stack made 37 active here out of 60. Jones & Laughlin Steel Corp. now has all five of its Aliquippa blast furnaces on and five of six at the Eliza works, whereas Carnegie-Illinois Steel Corp. has 16 of 32 on at its Pittsburgh works; National Tube Co. three of four; Pittsburgh Crucible Steel Co. one of two; and Pittsburgh Steel Co. two of two. At Johnstown, Pa., Bethlehem Steel Co. is operating five of seven stacks.

Birmingham—The rate here has been maintained at 58 per cent of capacity, with 13 open hearth furnaces being kept in production. Demand for plate and sheet in particular warrants operations of mills on night turn.

New England—Operations were unchanged at 78 per cent last week. It is expected the same rate will be maintained this week.

Youngstown—Held at 78 per cent last week with no great change either way expected this week.

Cincinnati—The rate here remained unchanged at 76 per cent last week.

Cleveland—In this district the rate was 82 per cent last week, a decrease of 3 points. While one open hearth was added to the active list, another was taken off for repairs.

SHEET SALES UP IN JUNE

Daily average sheet sales in June, as reported by the National Association of Flat Rolled Steel Manufacturers, Pittsburgh, amounted to 8715 net tons, compared with 6178 tons in May. Production averaged 7015 tons, against 7228 in May, while shipments were 6715 tons in June and 6778 in May. Totals for June: Sales, 261,439 tons; production, 210,448 tons; shipments 203,853 tons.

Total sheet capacity in the United States for June was approximately 500,000 tons, and capacity on which the association's figures are based was 304,000 tons.

New Record in Steel Output by 1937, If Gen. Dawes' Prediction Comes True

STEEL ingot production will be at 85 per cent and finishing mills will be operating at capacity by the opening of 1937, it was stated last week by Gen. Charles G. Dawes, Chicago banker and former vice president of the United States.

Considerable interest is attached to Gen. Dawes' prediction in view of the accuracy of his previous opinion, expressed at the end of 1934, that a sustained rise in business would start about the middle of 1935.

"For weeks," he remarked in his latest statement, "business commentators have been looking for a recession in the rate of operations of steel plants. As each week goes by without bearing out their prognostications they move the date ahead.

"What they forget is that there is nothing seasonal about the stored up demand on the part of the public. It is this tremendous accumulation of needs which is being expressed in the current volume of business handled by the steel companies.

This Is Unusual Year

"Tin plate is already at capacity. The amazing thing is the seeming inability of trade and economic commentators to see that this is an unusual year, as unusual a year as the panic year, and arising as an inevitable of that extreme."

If the former vice president's expectations are realized and if either December or January should have average ingot operations of 85 per cent, it would mean an output for the month of about 4,850,000 tons and a new high record. The present high mark for December is approximately 4,000,000 tons, in 1928, and the January record is 4,500,000 tons, in 1929.

As to the accomplishment of capacity operations of finishing mills, demand for finished steel rarely, if ever, is sufficiently well balanced to permit all mills to run full simultaneously. This is particularly true in the winter. At that time rail mill operations are restricted by the fact that northern roads do not care to take delivery of rails until their track programs get under way—generally in the spring. To a certain extent building construction also waits for warmer weather, although this has more effect upon reinforcing bars than upon structural steel.

Forecast Steel Recovery in 1934

Gen. Dawes first attracted attention as a business forecaster in December, 1934, when he predicted that within six months the steel industry would be in the van in a definite movement of business from the depression. Steel producers were concluding six months of average operations of only slightly more than 25 per cent. There were signs of an impending change in the situation, however, in the fact that operations were rising gradually during the fourth quarter when seasonal precedent called for a recession.

The ensuing six months were productive of no recovery, output being off slightly from that of the first half of 1934. Shortly after the opening of July operations started to climb, culminating in a peak for the year in December. This recovery has extended into 1936.

Gen. Dawes based his first prediction on the theory that depressions last only until delay in public buying has reached a point where further postponement is impossible. In major depressions of the past this restriction in buying has extended for about six and a half years. Political activities have little to do with hastening or delaying the start or end of depressions, according to the general. Political "pump priming" stimulates business only as long as the priming fluid lasts.

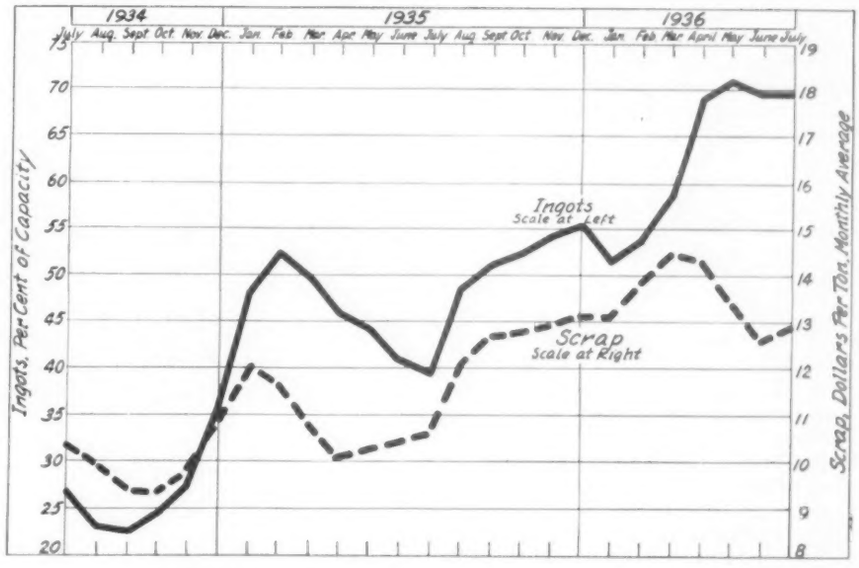
"Nothing Can Stop the Progress"

"Recovery is inevitable," he said more than a year and a half ago. "Nothing can stop the progress toward it, just as nothing could stop the progress toward the chasm in 1929. The various steps taken by the government to aid business and employment will neither greatly retard nor greatly accelerate the return of good times.

"The mass confidence in a major depression once regained," he said in a subsequent speech in September, 1935, "is not subject to frequent oscillations as has been generally claimed by unquiet minds, but, once regained, its continued existence, unless interrupted by war or similar elemental mass action, thereafter brings about a natural course of recovery in a definite time which is best measured, not from conjectural and varying estimates as to when confidence was regained, but from the initial stock crash or panic which demonstrated the existence of its general loss."

Scrap Again Foreshadowing Increase in Steel Ingot Production?

SCRAP prices again have turned upward strongly, and, if experience in 1935 is repeated, are foreshadowing further gains in steel ingot production. Scrap advanced steadily from April, 1935 to March, 1936. When this trend started, ingot output was turning down. Scrap appeared to have lost barometric significance, but by August the ingot figures were rising, and except for the first two months of 1936 the trend in ingots has continued upward. Scrap prices in the accompanying chart represent STEEL's composites.


1934
1935
1936
July Aug. Sept Oct. Nov. Dec. Jan. Feb Mar Apr May June July Aug. Sept Oct. Nov. Dec. Jan. Feb Mar April May June July
Ingots, Per Cent of Capacity
Scrap, Dollars Per Ton, Monthly Average
Ingots
Scale at Left
Scrap
Scale at Right
75 70 65 60 55 50 45 40 35 30 25 20
19 18 17 16 15 14 13 12 11 10 9 8

Radio Production at All-Time High, But Steel Requirements Are Lighter

ALTHOUGH radio sets are being produced and sold this year at probably the highest rate in history, steel requirements are lighter than in pre-depression years, due to the trend toward smaller and more compact units. The use of steel for radios, however, is unquestionably up from 1932, which was low both in number of sets manufactured and aggregate value.

While the average size of sets has been growing smaller and the average value declining, the market has been given a lift from a new source—automobiles. This year radio sets are going into about 20 per cent of the automobiles produced, as a standard assembly proposition.

The present annual rate of radio steel consumption is unknown, but both steel producers and radio manufacturers believe it is considerably under the 1929 rate; also down from 1930, when, according to a current survey, approximately 76,000 tons of steel sheets, strips, bars and other products went into the 3,900,000 sets, and more than 32,000 tons were used in making loud speakers.

Sets Are Smaller

In 1929, domestic sales totaled 4,438,000 units, with a total value of $592,068,000. Last year 4,750,000 sets were sold, but the total value was only $237,455,000. In addition, 625,000 sets went abroad.

The marked difference in value shows the transition to smaller sets as an economic necessity in seven depression years. In 1929 sets were much larger and there was more liberal use of materials, including steel. The picture began to change rather drastically when a large number of small universal sets started to flood the market, using either alternating or direct current and not requiring power transformers. Compact, built-in loud speakers meant substantial savings in steel.

Growth of the market for automobile sets proved a boon to the radio industry. From the relatively small number of 34,000 sets in 1930, with a valuation of $3,000,000, the sale of automobile radios rose to 1,100,000 sets last year, with a total value of $53,350,000. The output was still behind the 2,050,000 table sets, valued at $74,825,000, and the 1,600,000 consoles, valued at $109,280,000, but represented a tremendous increase.

Today perhaps the principal item of steel is hot-rolled pickled sheets, 18 to 16 gage, usually cadmium plated, for the chassis. Another important item is cold-rolled sheets, usually 20 to 18 gage, for the cone speaker and certain small parts. Still another item is electrical sheets, 29 to 24 gage, built in laminations for transformers and choke coils, principally.

In recent months, an increasing amount of this electrical steel has been sold in coils, narrow strips, to facilitate fabrication in the radio plant. The coiling has presented some different problems, but apparently they have been satisfactorily solved by some producers and a still greater consumption of electrical steel is expected in this form.

Requirements for automobile sets vary somewhat from household sets. Because of the drain on the storage battery, a permanent magnet is used instead of coils. This calls for a smaller quantity but more expensive quality of steel, a nickel-cobalt steel. The housing for the automobile radio requires more steel to protect it from mechanical shock and dirt. The vibrator units require a little more steel, a high-grade steel, spring steel usually.

A relatively new use of steel in radio, although the requirements at best will probably be limited, is the metal tube. Introduced early in 1935, it is now on a commercial basis, and is said to be the first real mechanical change of fundamental character in radio since the introduction of the vacuum tube.

A basic advantage, it is claimed, is that more heat can be dissipated from the metal shell, as metal is a better conductor, and can be painted black, which improves radiation. It will withstand a high temperature and is effective in the short wave region.

The principal steel parts include the shell and the cap, or so-called "header." Welding of these two parts presented a difficult problem but machines now have been designed which are capable of delivering current for accurate and brief, pre-determined periods of time, usually only a few hundredths of a second.

The shell, the chief item, comes in various sizes, ranging from about ¾-inch to 3 inches in height, and usually is slightly less than 1 inch in diameter. The gage is relatively light, it is stated. It is doubtful if the average tube takes more than an ounce or so of steel. Hence, it represents a limited outlet for steel. Last year approximately 65,000,000 radio tubes of all descriptions were produced.

Eaton Mfg. Adds to Plants

Eaton Mfg. Co., Cleveland, has completed modernization of its plant at Massillon, O., and removal of its stamping division from Detroit. A conveyor system and additional equipment is being bought for the Jackson, Mich., plant, the plating department is being enlarged and additional lighting facilities provided. W. C. Eaton, president Eaton Detroit Metal Co., a subsidiary, will operate the Massillon plant. J. L. Shanahan will be factory manager.

March of the Welding Machines

ADOPTION by new users, plant expansion by old users, and the prevailing tendency to replace obsolete equipment have more than doubled the demand for 40-volt electric arc welding equipment. One manufacturer has been forced to increase the length of roller-bearing conveyor lines in the plant which uses flow line production methods. Photo courtesy of Hobart Brothers, Troy, O.

First Half Imports Rise 74 Per Cent

IMPORTS of steel and iron products for first half show a heavy increase over first half of 1935. In total tonnage, including scrap, the increase is 74 per cent, from 182,863 gross tons in first half 1935, to 319,145 tons in the corresponding period of 1936. With scrap tonnage deducted other imports increased 48 per cent, from 170,807 tons to 253,046 tons. Scrap imports rose from 12,056 tons in first half 1935 to 66,099 tons for the same period of 1936.

June Ahead Of May

Iron and steel imports in June were only 519 tons larger than in May, with totals of 59,910 and 59,391. However, scrap importations were 3892 tons larger in June than May. In items other than scrap there was a reduction of 3373 tons in June compared with May.

Pig iron furnished the largest tonnage with 16,793 gross tons, compared with 15,296 tons in May. Ferroalloys totaled about the same in both months. Welded and other pipe showed slight gains over May.

Greatest shrinkage was in hoops and bands, which declined from 2373 tons in May to 979 tons in June. Shapes dropped from 4946 tons in May to 3157 tons in June, bars from 3805 to 2111 tons, and barbed wire from 1069 to 557 tons.

ORIGIN OF JUNE IMPORTS

Gross Tons

	Iron ore	Pig iron	Manganese ore	Ferromanganese
Russia	.....	851	18,528	.....
France	.....	.....	12	437
Germany	.....	308	7	.....
Cuba	22,000	.....	.....	.....
Netherlands	.....	4,798	.....	517
Mexico	271	.....	.....	.....
Norway	15,274	340	.....	1,189
Poland	.....	.....	.....	78
Sweden	.....	210	.....	.....
Chile	132,480	.....	.....	.....
United Kingdom	.....	2,554	.....	.....
Gold Coast	.....	.....	6,994	.....
Canada	.....	694	168	.....
Japan	.....	.....	.....	1
Kwantung	.....	209	.....	.....
British India	.....	6,829	3,492	.....
Total	170,025	16,793	29,201	2,222

	Sheets, skelp and sawplate	Structural steel	Steel bars	Hoops and bands
Belgium	380	1,932	1,560	685
France	53	910	82	15
Germany	964	311	100	84
Austria	.....	.....	7	.....
Sweden	11	.....	294	.....
United Kingdom	3	.....	62	195
Canada	.....	4	1	.....
Czechoslovakia	.....	.....	5	.....
Japan	9	.....	.....	.....
Total	1,420	3,157	2,111	979

Allegheny Given Composite Facilities Through Merger

Merging of Allegheny Steel Co. and West Leechburg Steel Co., approved by stockholders of the two companies July 27, provides the new Allegheny Steel Co. with an integrated steel plant, having an annual ingot production capacity of 500,000 tons.

Finishing facilities for the production of hot and cold-rolled strip steel in all grades in capacities approximating 20,000 tons a month, and finished sheets up to 72 inches wide in capacities in excess of 18,000 tons per month also are provided.

In addition Allegheny has general facilities for the manufacture of hot and cold stampings, boiler tubes, lapweld steel pipe, seamless tubular products and steel castings.

West Leechburg's strip plant capacity is over 250,000 tons annually. The two plants are just 12 miles apart. No changes in personnel in either company are contemplated.

Directors of Allegheny on July 27 declared a dividend of 25 cents a share and an extra of 15 cents a share on common stock payable Sept. 16 to stockholders of record Sept. 1. A quarterly dividend of $1.75 was declared on preferred stock payable Sept. 1 to holders of record Aug. 15.

UNITED STATES IMPORTS OF IRON AND STEEL PRODUCTS

Gross Tons

Articles	June, 1936	May, 1936	Jan. thru June,'36
Pig iron	16,793	15,296	97,507
Sponge iron	.....	.....	1,128
Ferromanganese (1)	2,222	2,625	12,017
Spiegeleisen	5,285	4,589	17,374
Ferrochrome (2)	2	.....	3
Ferrosilicon (3)	22	67	397
Other ferroalloys (4)	150	1	151
Steel ingots, blooms	.....	.....	61
Billets, solid, hollow (5)	79	78	389
Concrete reinforc. bars	501	682	1,709
Hollow bar, drill steel	162	192	1,008
Bars, solid or hollow	2,111	3,805	18,642
Iron slabs	.....	.....	.....
Iron bars	168	67	659
Wire rods	1,278	1,600	9,770
Boiler and other plate	.....	.....	52
Sheets, skelp, sawplate	1,420	1,523	10,537
Die blocks or blanks (5)	2	1	91
Tin plate, taggers' tin and terne plate	8	38	135
Structural shapes	3,157	4,946	25,427
Sheet piling	182	88	1,046
Nails and fastenings	573	402	3,546
Cast iron pipe, fittings	17	47	126
Malleable iron pipe ftgs.	.....	3	20
Welded pipe	531	395	2,757
Other pipe	1,526	937	8,689
Hoops, bands for baling	.....	.....	88
Other hoops, bands	979	2,373	10,916
Barbed wire	557	1,069	9,219
Round iron, steel wire	420	480	2,336
Tele. and tel. wire	1	.....	33
Flat wire, steel strips	274	261	1,478
Wire rope, strand	183	163	1,220
Other wire	64	85	703
Nails, tacks, staples	1,479	1,695	12,803
Bolts, nuts and rivets	16	80	235
Horse and mule shoes	44	44	211
Castings and forgings	117	70	555
Total gross tons	40,323	43,696	253,046
Iron and steel scrap	19,587	15,695	66,099
Grand total	59,910	59,391	319,145

(1) Manganese content; (2) Chrome content; (3) Silicon content; (4) Alloy content; (5) New classes. No comparable figures for previous year.

By-Product Coke Touches Capacity

PRODUCTION of metallurgical coke in the United States is increasing with steel output, and recent developments have made it necessary to resume output of beehive coke, indicating that capacity of by-product ovens nearly has been reached.

Final statistics by the bureau of mines just issued show that this situation was practically reached during 1935. By-product coke production reached its peak in 1923, with 37,597,664 net tons. A low was reached in 1932, with output of 21,136,842 tons.

Since 1932 a steady increase of about 4,000,000 tons has been made each year, 1935 giving a total of 34,224,153 tons. This is only 3,373,611 tons under the top figure.

Production in the first six months of 1936 totaled 20,621,800 tons, according to the bureau. With this rate sustained for the year total output would be well over 41,000,000 tons.

Beehive output in 1923 totaled 19,379,870 net tons, much below totals in earlier years when this grade of coke supplied most blast furnace requirements. By 1932 the production was down to 651,888 tons. In 1935 it had recovered to only 917,208 tons.

Pennsylvania Leading Producer

That the blast furnace industry is the backbone of by-product coke consumption is shown by the bureau's figures for 1935. Producers burned 20,112,999 net tons and sold for furnace use 2,354,070 tons. Foundries bought 1,299,836 tons and the remainder was sold for domestic purposes and industrial uses other than blast furnaces and foundries.

Pennsylvania, center of production of beehive coke, held its supremacy in coke output, even when the shift was made to by-product fuel, and in 1935 the state accounted for 8,078,175 tons, more than 25 per cent of the total. Ohio was second.

Figures by the bureau indicated the total value of all coke produced in 1935 was $176,853,135. By-products recovered from coke manufacture were valued at $101,910,028, a figure well over half the value of the coke from which it was recovered.

At the beginning of 1935 the by-product coke industry had 12,963 ovens. During the year some ovens were dismantled and the total at the close was 12,860, with 122 under construction. Beehive ovens at the end of the year numbered 13,674, most of which had not been in operation for a number of years and would require major repairs to make them available.

Men of Industry

LEON C. REED has been named manager of the recently established Chicago sales office of Inland Steel Corp. Mr. Reed started in the order department of Inland in 1909, working in various departments until his transfer in 1920 to the sales department. He has handled sales for the state of Indiana and the south side of Chicago.

Otto G. Neumann, who has been associated with Inland since 1929, is assistant manager of the Chicago sales office. Mr. Neumann was associated with Scully Steel & Iron Co. for five years and Jones & Laughlin Steel Corp. for 11 years. He has handled

Otto G. Neumann

sales in parts of Michigan and Ohio for Inland.

♦ ♦ ♦

Charles S. Davis, president of Borg-Warner Corp., Chicago, has been elected a director of the City National Bank & Trust Co., Chicago.

♦ ♦ ♦

A. J. Swisler, designer of oil field machinery, has joined the Hyatt Roller Bearing Co. as sales engineer in Texas and the Mid-Continent with offices in Dallas, Tex.

♦ ♦ ♦

Ronald Wetherington has been appointed Toledo representative of Toledo Steel Products Co., Toledo, O. He will assist Howard K. Lang in the Middle Atlantic states.

♦ ♦ ♦

Carl Nygren, formerly with Sullivan Machinery Co. at the Michigan City plant, has been appointed chief engineer of Michiana Products Corp., Michigan City, Indiana.

♦ ♦ ♦

Frank H. Carter, of Dietrich Bros. Inc., has been elected president of the Steel Club of Baltimore. Charles Duvall, Maryland Bolt & Nut Co., is vice president; Charles W. Test, Baltimore representative, Youngstown Sheet & Tube Co., secretary-treasurer.

♦ ♦ ♦

Charles E. Hart Jr., secretary of Chase Brass & Copper Co. Inc., has been appointed to the office of vice president and also will continue his present office.

♦ ♦ ♦

Lester F. Blough has been elected vice president in charge of motor sales, and Oscar C. Schmitt, vice president in charge of fan sales and advertising, of Emerson Electric Mfg. Co., St. Louis. Milton C. Miller, vice president, has resigned.

♦ ♦ ♦

Elmer B. Hauser has been appointed research metallurgist by Weldon Tool Co., Cleveland. Mr. Hauser, who is a graduate of Case School of Applied Science, Cleveland, for 11 years was chief metallurgist for National Tool Co.

♦ ♦ ♦

C. A. Vane, for 11 years general manager of the National Automobile Dealers' association, has been appointed Pacific coast manager for the trailer division, Mullins Mfg. Co., Salem, O. He will establish offices in San Francisco and Los Angeles.

♦ ♦ ♦

Eugene F. McCarthy, member of Beals, McCarthy & Rogers, Buffalo, wholesale hardware firm, was elected recently secretary of the executive committee of the Buffalo junior chamber of commerce. Mr. McCarthy also is a national councilor for the group.

♦ ♦ ♦

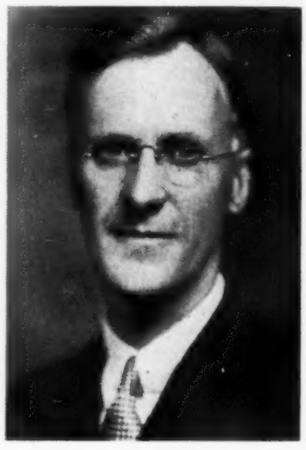
T. G. Baer, who has specialized in industrial sales at the Chicago office of Timken Roller Bearing Co., has been promoted to the position of manager of the Buffalo office. Mr. Baer joined the Timken organization in 1929 after completing his engineering course at Purdue university.

♦ ♦ ♦

Thomas Bradley has been appointed executive vice president of Hupp Motor Car Co., to head activities of the company, following the death of Wallace Zweiner, president and treasurer. Mr. Bradley was formerly vice president in charge of manufacturing and purchases.

♦ ♦ ♦

A. W. Holmes has been transferred from the Chicago engineering department of Link-Belt Co., Chicago, to the position of sales engineer at the Pittsburgh office, 436 Seventh avenue. Mr. Holmes, who joined Link-Belt in 1934 after experience in this field in the United States, Mexico, and Russia, will



Leon C. Reed

specialize in coal tipple and washery work.

♦ ♦ ♦

J. W. Gleason has resigned as sales manager of the Knapp Bros. Mfg. Co., Joliet, Ill., to take charge of the Chicago branch of the Rawlplug Co. Inc., New York. Announcement from the Rawlplug Co., STEEL, June 22, page 20, stated that he had resigned as general manager of the Knapp company.

♦ ♦ ♦

Fowler McCormick, second vice president in charge of foreign sales for International Harvester Co., Chicago; Arnold B. Keller, treasurer of the company, and Ralph Budd, president of the Chicago, Burlington & Quincy railroad, have been elected to the board of directors of the Harvester company to fill vacancies.

♦ ♦ ♦

Charles A. Rowan, president, Westinghouse Air Brake Co., has been named chairman of the board, succeeding A. L. Humphrey, who becomes chairman of the executive committee of the board. George A. Blackmore, president of Union Switch & Signal Co., a subsidiary, becomes president

Frank C. Miller

Who has been appointed manager of sales, tin plate division, of Republic Steel Corp., as noted in STEEL, July 27, page 26

of Westinghouse Air Brake in addition to retaining his present post.

♦ ♦ ♦

Walter P. Benter, plant metallurgist for Pittsburgh Crucible Steel Co. for 16 years, has joined the alloy division of bureau of technical contacts, Carnegie-Illinois Steel Corp. He will have offices in the Carnegie building, Pittsburgh. He is a graduate of Carnegie Institute of Technology.

♦ ♦ ♦

W. C. A. Bickham, Galion, has become president and general manager of Wyandot Steel Products Corp., Upper Sandusky, O., formerly known as Wyandot Metal Vault Co. Mr. Bickham previously was identified with National Grave Vault Co., Galion, and in 1929-30 he was assistant general sales manager, Fisk Tire & Rubber

A. C. Cummins

Co., New York, later joining Sun-Glow Industries, Mansfield, O.

♦ ♦ ♦

A. C. Cummins, general superintendent of the Duquesne works of Carnegie-Illinois Steel Corp., has been appointed assistant manager of operations for the company in the Pittsburgh district. Mr. Cummins was first employed by the Duquesne works as an electrical draftsman in 1911 and has advanced with the company in various positions of responsibility until 1932, when he was named assistant general superintendent. A year later he was named general superintendent.

K. H. McLaurin, chief mechanical engineer at the Duquesne works, has been named general superintendent of the division to succeed Mr. Cummins.

B. M. Livezey, superintendent of the by-product coke plant at the Clairton works of Carnegie-Illinois Steel Corp., has been appointed assistant general superintendent of the Clairton division.

♦ ♦ ♦

Alfred Hutchinson, director of Skinningrove Iron Works Ltd., who is now vice president of the British Iron and Steel institute, has been nominated for the presidency of the institute. He is expected to take office May, 1937, succeeding Sir Harold Carpenter. The Right Honorable the Earl of Dudley, member of council, and chairman of the Earl of Dudley's Round Oak Works Ltd., has been nominated president to take office in May, 1938.

♦ ♦ ♦

A. L. Humphrey and John F. Miller, chairman and vice chairman, respectively, of the executive committee, Westinghouse Air Brake Co., Wilmerding, Pa., have been re-elected directors of Pennsylvania Airlines & Transport Co., Pittsburgh. George T. Ladd, president of United Engineering & Foundry Co.; and George S. Davison, president of Davison Coke & Iron Co., Pittsburgh, also have been re-elected directors of the transport company.

♦ ♦ ♦

F. H. Hardin, who has been associated with the New York Central railroad for 27 years and who is now assistant to Frederick E. Williamson, president of the railroad, has resigned to become president of the Association of Manufacturers of Chilled Car Wheels, effective Sept. 1. Mr. Hardin, a graduate of Georgia School of Technology and Columbia university, was named chief engineer of motive power and rolling stock in 1920, six years later being appointed to his present post.

Died:

CECIL L. FERGUSON, 53, for the past seven years superintendent of Mahoning Valley Steel Co., Niles, O., July 27, in Youngstown, O. Mr. Ferguson had spent many years in the steel industry in northern and eastern Ohio. As a young man he was employed by the Mansfield Sheet & Tin Plate Co., with which he remained for many years. Later he became superintendent of one of the Niles plants of Empire Steel Corp.

♦ ♦ ♦

George Smith, chairman of the London Metal exchange, in London, England.

♦ ♦ ♦

William E. Warnock, 66, founder and president, Pittsburgh Machine & Supply Co., Pittsburgh, at Pittsburgh, July 26.

♦ ♦ ♦

Robert S. Murray, 68, former treasurer of General Electric Co., at his home in Schenectady, N. Y., July 29.

♦ ♦ ♦

Arthur Booth, 54, president of Pittsburgh Supply Co. since 1917 and formerly purchasing agent of the Philadelphia Co., Pittsburgh, in Pittsburgh, July 23.

♦ ♦ ♦

Thomas Mason, 68, for the past 20 years president of Fee & Mason, New York, which manufactures plumbing supplies, near Cork, Irish Free State. His home was in East Orange, N. J.

♦ ♦ ♦

Fred Eggley, 68, general labor superintendent of National Enameling & Stamping Co. and Granite City Steel Co. for more than 40 years, July 16 in Granite City, Ill.

♦ ♦ ♦

Hugh McKean Jones, 57, who retired 11 years ago as vice president of Kelly & Jones Co., manufacturer of valves and fittings, Pittsburgh, at Canandaigua, N. Y., July 15. He was a graduate of Yale university.

♦ ♦ ♦

Medford J. Brown, 52, president, Maryland Coal & Coke Co. since 1923, at his home in Merion, a suburb of Philadelphia, July 24. He was an organizer and vice president of the Maryland New River Coal Co.

Christian P. Berg

Who, as noted in STEEL, July 27, page 26, was known in the steel industry for his contributions on motion study and for systematizing shop practices, died July 4 in Chicago

♦ ♦ ♦

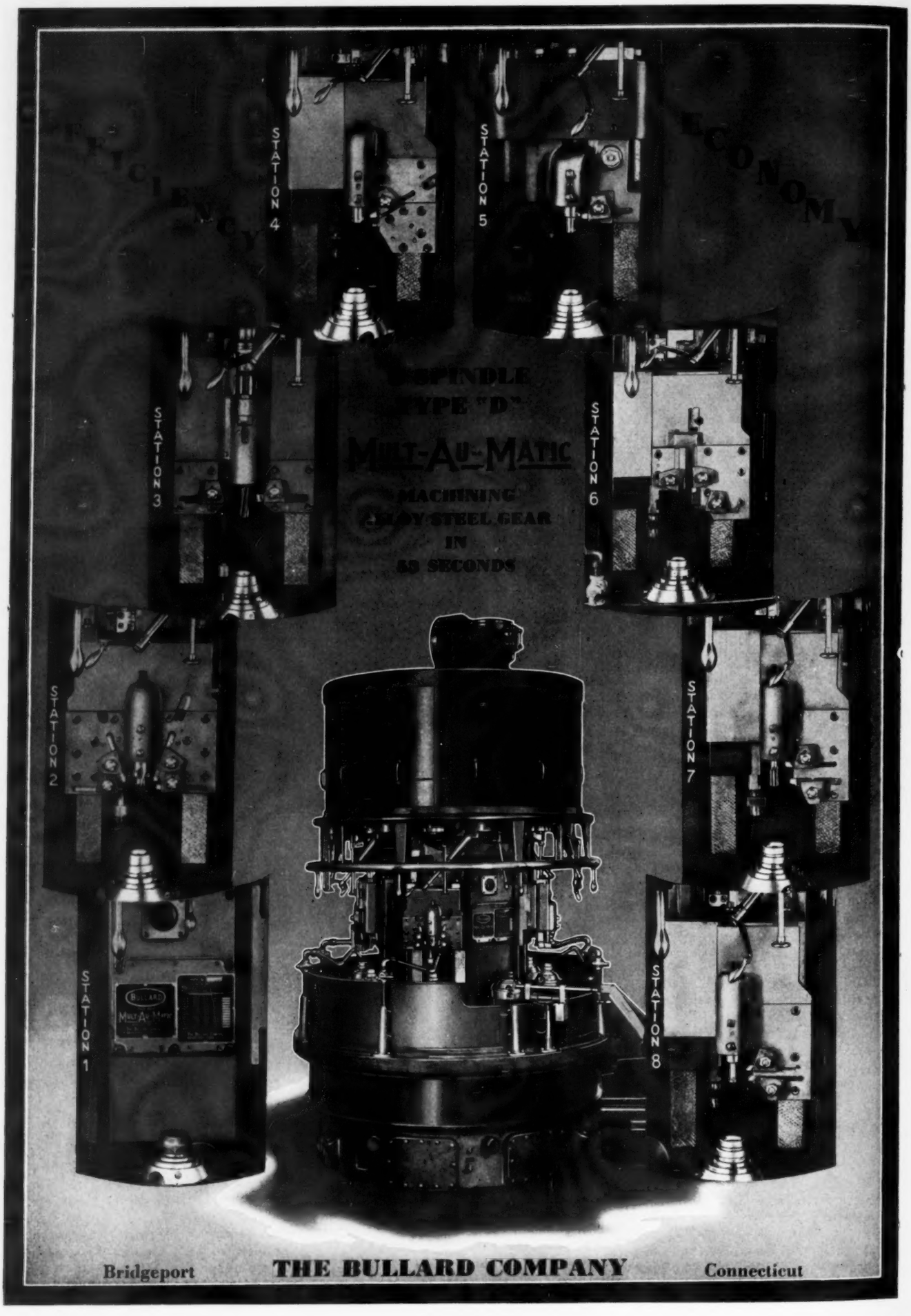
Edward S. Nettleton, 67, city engineer for New Haven, Conn., since 1920, at his home recently. He was graduated from Sheffield Scientific school, Yale university, in 1892. In 1895 he was engaged in structural engineering in New York.

♦ ♦ ♦

Alexander D. McDougall, 87, nationally known railroad builder, in Portland, Oreg., July 23. Mr. McDougall had participated in the construction of more than 2,000 miles of railroad, many bridges, tunnels and public works.

♦ ♦ ♦

Clifton Clark Brinkerhoff, 54, for 27 years associated with the United Screw & Bolt Corp., Chicago, and its predecessor companies, at his home at Hinsdale, Ill., July 30. At the time of his death and for many years he had been secretary and sales manager of the corporation.


EFFICIENCY
ECONOMY
STATION 4
STATION 5
STATION 3
STATION 6
STATION 2
STATION 7
STATION 1
STATION 8
SPINDLE
TYPE "D"
MULT-AU-MATIC
MACHINING
ALLOY STEEL GEAR
IN
55 SECONDS
Bridgeport
THE BULLARD COMPANY
Connecticut

DETROIT

SOMEONE once said that nothing is certain except death and taxes, but the modernized version should include yearly change in automobile models.

Making last year's car almost obsolete and creating a new crop of backwoodsmen out of motorists whose automobiles are as old as five years, has been accepted as the method of the motor industry.

So, when the screws went down generally on automobile publicity channels last week, observers in Detroit knew that the cycle was starting again.

For example, Ford issued a general letter to all its outside concerns asking silence on the subject of the 1937 model. Packard created an artificial scarcity of plant passes. At certain General Motors divisions it appeared as though admission badges might become a collectors' item. Another automobile company hired several extras for information desk duty and required a detailed report from each would-be caller.

But, thorough as the veil of secrecy was being drawn, the industry's executives seemed to forget that curiosity, once denied, becomes insatiable.

Changeover Period Starts

At the turning point, when the automobile industry is mopping up last traces of 1936 model runs, the situation is something like this in a nutshell: Many plants are starting to go down for a week or two in August. Taking inventories becomes a popular chore. Plant repairs become more numerous. Most of the 1937 dies and new tools should be in place by Sept. 1.

Ford went down last Friday night and, speaking generally, will not be apace until Aug. 17. The shutdown is not general, for many Rouge subdepartments are busy balancing stocks of finished parts, but car assemblies have terminated temporarily.

Up through last week, Ford assemblies continued at a rate better than 22,000, counting all passenger cars and trucks. The July assembly total was close to June's showing, and from the production standpoint, the month just closed was the best July since 1929.

Ford's field stocks are obviously built up to a point that will take care of retail sales over the two weeks or so that general manufacturing schedules at Dearborn are down, plus the cushion required due to inevitable delays likely to occur when a new model is being readied.

Speculation on when the new Ford will come out is rife in automotive circles. Most details have been agreed on, including braking, and the only large factor remaining is appraising the market shrewdly enough to gear introduction properly.

Ford Has Zephyr Type Body

If you expect that Ford's V-8 for 1937 will be radically altered, you'll be disappointed. From the angle of outward appearance it will be altered, but mechanically relatively few changes will be made.

The Lincoln Zephyr type of body design is going onto the V-8 to a marked degree. Narrow running boards, front lifting hood and V-type shield design in the front radiator shell have been adopted.

The Ford all-steel top, a 1937 innovation, is to be formed from a single piece of sheet steel beginning at the cowl, drawn back straight and inclusive of everything to the horizontal body bead in the rear, where the rear and rear-quarter panels join by welding.

Under the hood, Ford has a few surprises. For one major departure, the battery will be placed in an elevated position back of the motor and in front of the instrument panel, but in a horizontal plane level with the front seat. This change has been made to facilitate servicing.

The V-8 motor retains its present dimensions as to bore, stroke and overall sizes. However, in the interests of working out crankshaft torque, the firing order has been changed. The present setup is 1-5-4-8-6-3-7-2, which brings No. 1 cylinder firing immediately in sequence after No. 2. To correct this strain a modification has been made involving Nos. 7 and 8 cylinders chiefly.

The cooling system is also changed, with the change centering on water entering the cooling chamber from a point near the center of the side of the block. The block will be cast without the water jacket on the bottom sides of the V being covered. A strip of pressed steel, about 5 inches wide, will be welded over this opening.

Preheating furnaces now are being built for the Rouge plant. The engine blocks will pass through these furnaces and be given the desired high temperature prior to the welding of this steel water jacket.

Fan and fuel pump of the V-8 have both been dropped lower, further points confirming that the Zephyr design of low road clearance will be followed. A novel type of engine has been agreed upon for the new model.

The front headlamps will follow the Zephyr design, but only to a degree. Unlike big brother Lincoln, Ford's lamps are not set directly in the center of each of the two front fenders. The present crimp or ridge lengthwise down the center of the front fenders is being carried through, so the headlamps, while being set in the fender, are placed a shade closer to the side of the radiator shell.

Small V-8 Talk Persists

Whereas Lincoln will make the front fender and headlamp unit out of a single draw in 1937, Ford will work out the problem by welding the headlamp unit into a cutout.

Other points on the coming Ford show an unchanged wheelbase, continuation of the carburetor as standard equipment that was adopted in June, a modification in the octagon-shaped distributor part, and the use of stainless steel in one or two minor parts.

In regard to the small Ford engine, the possibility is still strong that it will augment the V-8 for 1937. At present the Ford foundry is working against a schedule of 275 blocks a

day on this small unit. Numerous commitments for parts and materials have been made, designated as only applicable for the trimmed-down version of the eight-cylinder motor.

In fact, if you have an idea that will save Ford weight in any of its parts, better take it to Ford's engineering or planning departments, for every measure is being scanned to cut down deadweight so that the small eight can readily be dropped into the present V-8 frame and chassis. Several weight-saving propositions have found a receptive ear at Dearborn already.

Believe it or not, a braking change wouldn't be surprising for the V-8. As recently as May it was considered certain that mechanical brakes were still to be the thing for next year, General Motors and Chrysler to the contrary.

But since Kelsey-Hayes has decided to put around $500,000 into plant and equipment for making hydraulic brakes, the word is that Ford will swing away from mechanicals in at least one of its lines next year.

The Kelsey item includes about $45,000 for new building and the balance for equipment. Incidentally, the Brackelsburg foundry practice at Kelsey is being discarded.

Chevrolet Begins Vacations

Before Ford closed last week it was a potent market factor in steel and other materials although it still has a lot of material unspecified and unshipped against the last buy on 93,000 of the present V-8's, last week it came into the market for materials covering 157,000 jobs, mainly in 1937 sizes.

Most of this steel and other material is to be shipped through August and September, but the buying was done urgently all in one week to bypass any delays from schedule.

Ford was not the only one last week that scurried to place orders for steel on mill books. Chevrolet by now has placed substantial orders for the first lots needed in its 1937 job.

In the meantime, Chevrolet is starting its staggered vacations in a number of parts plants. The Bay City division went down Aug. 3 for two weeks and will be followed by Saginaw, Detroit divisions and others, but the chances are no two will be down at the same time.

The Flint plant, center of Chevrolet finished car assemblies, will be the last to observe a shutdown, but on the other hand, it will be the first to resume. According to schedule, the first 1937 Chevrolets start coming off the line there Oct. 1.

A reshuffling of series names is promised by General Motors' most popular make. The so-called "standard" model will be dropped for 1937 and Chevrolet will come out with two "master" models. One of them will be called the "conventional master," the other the "de-luxe master."

The two masters will have similar frames. The girder box-type steel frame will be used entirely, which consists of two box-section side rails connected by three box-section side members.

At present Chevrolet uses a "Y-K" type subframe assembly that is made out of channel sections 5¼ inches deep with a 2⅜-inch width flange braced by five cross members. The material used is ⅛-inch strip steel.

Chevrolet's L-head motor will be another distinctive feature in 1937, and although greatly changed in body design, Detroit says it will have to take a back seat to the redressing Chrysler is giving Plymouth for the coming season.

Speaking of vacations, Packard and Studebaker are others now down for inventory and rearrangement purposes. Some of the Chrysler divisions also have the same thought in mind for later in August.

Last week Chrysler confirmed that DeSoto had at last found a home. The old West End plant, bought from LaSalle several years ago, refurbished this spring and reported as DeSoto's new headquarters, was confirmed in a public announcement.

Chrysler says it can produce 500 cars daily at the division, located at Wyoming and McGraw avenues here, but it seems more likely that parts for that many Chrysler Corp. cars, not finished DeSotos alone, will be produced.

At all events, the Mr. Foy's DeSoto division, first set up in the Plymouth plant some years ago, then shunted to the Chrysler proper plant on East Jefferson, has finally established its own and separate headquarters. It will employ nearly 1750 men, and counting the addition being put up at present, will cost Chrysler close to five millions.

Limits Stamping Contracts

From the heavy presses going in there, the stamping shop will materially help out Dodge's press shops. Too, Chrysler Corp. seems more and more set on hauling in as much of its former contract work on stampings as possible. They say that Clayton & Lambert's Chrysler contract will be taken over by the buyer, and so will some of the Heintz Mfg. work at Philadelphia.

The record $29,473,736 that Chrysler earned in the second quarter, and the ensuing $4 quarterly dividend, has left many a ripple in automotive circles over the last few days. Though the management announced a special $2,000,000 bonus to employes late last week, many say it doesn't take the sting out of the matter for material suppliers to Chrysler. In fact, there was no rebate to the steel industry, for one example.

Such earnings in the face of threatening labor are close to red flag waving, some say here. The Mechanics Educational society is active again, so is John Lewis' committee for industrial organization.

Electric Auto-Lite is mentioned as being the prospective purchaser of Graham's Wayne, Mich., plant. Most of the equipment is being moved to Graham's Warren avenue division in Detroit . . . . Employes of the Moto-Meter Gage & Equipment Co., Toledo, O., have received questionnaires asking how many would be willing to leave Toledo and work in a new plant being built by the company in an unnamed city . . . . Great Lakes Steel Corp. will be making steel within the next few weeks in at least one of its four new openhearth furnaces . . . . The die shops are so busy here that skilled labor is at a decided premium . . . . Buick in 1937 will be set up for a mast antenna radio . . . . Report has it that Olds for next year will have the automatic transmission on the eight only . . . . General Motors is credited with July sales of about 180,000 units, whereas its field stocks June 30 were approximately 175,000.

Automobile Production

Passenger Cars and Trucks—U. S. Only
By Department of Commerce

	1934	1935	1936
Jan.	155,666	289,728	364,004
Feb.	230,256	332,231	287,606
Mar.	338,434	425,913	420,971
Apr.	352,975	452,936	502,775
May	330,455	361,107	460,565
June	306,477	356,340	454,487
July	264,933	332,109	*432,329
7 mo.	1,979,196	2,550,364	2,922,737
Aug.	234,811	237,400	.....
Sept.	170,007	87,540	.....
Oct.	131,991	272,043	.....
Nov.	83,482	395,059	.....
Dec.	153,624	404,528	.....
Year	2,753,111	3,946,934	.....

Estimated by *Cram's Reports*

Week ended:	
July 11	97,833
July 18	91,317
July 25	96,863
Aug. 1	95,970

*Estimated.

We're Joining ALLEGHENY

West Leechburg Steel Company

HOT AND COLD ROLLED STRIP STEEL

WORKS
LEECHBURG, PA

GENERAL OFFICES
UNION BANK BUILDING
Pittsburgh, Pa.

SALES OFFICES
NEW YORK - CHICAGO
DETROIT - DAYTON
TOLEDO - ST. LOUIS
CLEVELAND, OHIO
PHILADELPHIA - NEWARK
BUFFALO - ROCHESTER
SYRACUSE
TORONTO, ONT.

To the Trade:

Effective as of July 31, in the fortieth year of the company's existence as specialists in the production of hot and cold rolled strip steel, West Leechburg Steel Company—by merger agreement—became the West Leechburg Division of Allegheny Steel Company.

Our annual capacity of more than 250,000 tons includes no raw steel-making facilities, a lack which Allegheny Steel Company's annual ingot capacity of 500,000 tons amply supplies. Thus, we acquire complete control of every stage in the manufacture of our product, from open-hearth to finished strip, and further enlarge our facilities with a complete line of finished sheets in all grades and sizes up to 72". Such benefits as these cannot help but increase the reliability and desirability of our service to our customers.

We are happy also to assure users of West Leechburg products that they will be supplied by the same efficient organization as heretofore. No change is contemplated either in location or personnel.

James Lippincott
Chairman of the Board.

HOT AND COLD ROLLED WLSCo STRIP STEEL

WEST LEECHBURG STEEL COMPANY

Activities of Steel Users and Makers

CATERPILLAR TRACTOR CO., Peoria, Ill., has received an order for tractors and trailers costing about $1,262,691 from the civilian conservation corps. The order was a part of a $2,798,009 purchase of heavy equipment made for the CCC by the United States forest service.

Other contracts went to International Harvester Co., Chicago, for 127 tractors costing $255,180, and Cleveland Tractor Co., Cleveland, for 79 tractors, costing $88,956.

♦ ♦ ♦

Globe Steel Tubes Co., Milwaukee, has appointed Bissett Steel Co., Cleveland, distributor for its boiler and other pressure tubing.

♦ ♦ ♦

Edgar T. Ward's Sons Co., a division of Columbia Steel & Shafting Co., Pittsburgh, has leased offices in the Empire state building, 350 Fifth avenue, New York.

♦ ♦ ♦

Burton, Griffiths & Co., Ltd., Sparkbrook, Birmingham, Eng., has been appointed exclusive sales representative in Great Britain for sale of forging hammers and presses for Erie Foundry Co., Erie, Pa.

♦ ♦ ♦

Patent Specialty Supply Co., formerly of Cambridge, N. Y., has been consolidated with the Lovejoy Chaplet Co., Hoosick Falls, N. Y., under the name of Lovejoy-Patent Specialty Co. Inc., with headquarters at Hoosick Falls.

♦ ♦ ♦

Central Machine Co., Niagara Falls, N. Y., has been closed after 35 years of operation in the machine tool field. Recent death of both partners, Robert McIntyre and James T. Lister, led to the decision to discontinue operations.

♦ ♦ ♦

Pioneer Engineering & Mfg. Co., Detroit, has bought the Cordua Engineering Co., also of Detroit, and will combine its facilities for design of tools, dies, fixtures and special machinery. Owen Cordua, of the Cordua company, is affiliated with the Pioneer company.

♦ ♦ ♦

Dumore Co., Racine, Wis., manufacturer of electric motors and tools, has appointed W. J. Hermes, 100 Varick street, New York, its sales representative in the New York metropolitan area. He will provide engineering service on grinding and motor problems.

♦ ♦ ♦

Magnetic Mfg. Co., Milwaukee, has changed its name to Stearns Magnetic Mfg. Co., effective Aug. 1. The change in name involves no revision in corporate structure, management or plant location and is made to identify the company more closely with the trademark name, "Stearns."

♦ ♦ ♦

Beryllium Corp. of Pennsylvania, Reading, Pa., has established a nonferrous foundry department specializing in production of heat-treated castings of beryllium alloys, including large and small castings for electrical parts, machine parts and dies of beryllium copper and special alloys.

♦ ♦ ♦

Tritrol regulator division of James P. Marsh Corp., Chicago, has been formed into a separate company under the name Marsh Tritrol Co., with offices at 720 North Michigan avenue, Chicago. C. H. Olmsted is president, H. T. Kucera vice president and C. H. Bovington sales manager. Appliances will be manufactured for the company by the James P. Marsh Corp.

♦ ♦ ♦

Kennedy Valve Mfg. Co., Elmira, N. Y., has appointed Leonard E. Shaffer its Pacific coast manager, in charge of its San Francisco branch, 448 Tenth street. He will also continue to maintain his office at 1340 East Sixth street, Los Angeles, where he has been southern California representative of the company for many years.

♦ ♦ ♦

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been awarded contract by Secretary of the Interior Ickes for manufacture and delivery to Boulder Dam power house of four power transformers on its bid of $391,040. The transformers are of unusual size and will be capable of stepping the power from 16,500 volts up to 87,500 volts.

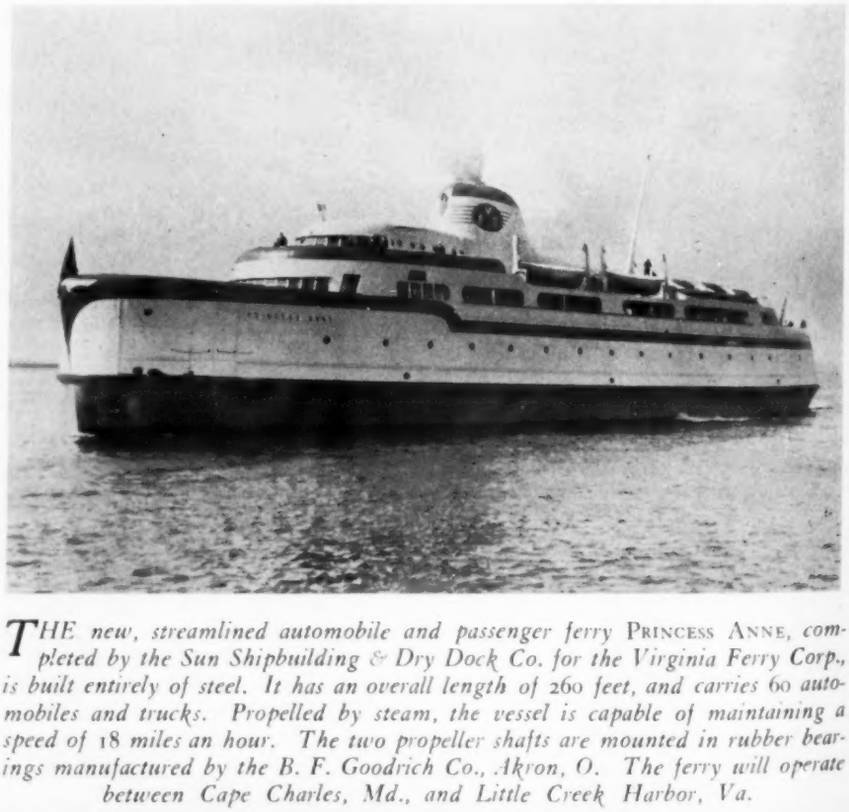
♦ ♦ ♦

Kelvinator Corp., Detroit, has added two departments, to manufacture an electric washer and electric ironer, as additions to its line of household appliances. V. J. McIntyre, domestic sales manager, has been placed in charge of washer and ironer sales. M. S. Bandoli, Texas district manager for Kelvinator, has been made domestic sales manager. P. L. Miles, formerly sales manager of the range division for Edison General Electric Appliance Co., will head the Kelvinator range department.

♦ ♦ ♦

Gaynor Iron Works Inc. is the name of a new structural steel fabricating and erecting company just launched in the New York metropolitan territory. As a starter, it will fabricate 400 tons of steel for the new Starcor Realty Co.'s building in Maspeth, N. Y. The company's plant is at 48 Williams place, Brooklyn. Officers: President, M. Gaynor; vice president, E. Reeber; secretary and treasurer, A. Gaynor. The company is the successor to the old Brooklyn fabricating interest known as Gaynor & Rosenblum Inc., now in process of liquidation.

Streamlined, All-Steel Ferry Boat



THE new, streamlined automobile and passenger ferry PRINCESS ANNE, *completed by the Sun Shipbuilding & Dry Dock Co. for the Virginia Ferry Corp., is built entirely of steel. It has an overall length of 260 feet, and carries 60 automobiles and trucks. Propelled by steam, the vessel is capable of maintaining a speed of 18 miles an hour. The two propeller shafts are mounted in rubber bearings manufactured by the B. F. Goodrich Co., Akron, O. The ferry will operate between Cape Charles, Md., and Little Creek Harbor, Va.*

WASHINGTON

THE basing point system as such will have no interest for the department of justice in its investigation of so-called collusive steel bidding, according to John Dickinson, assistant to the attorney general in charge of anti-trust cases and in charge of the collusive bidding survey. However, the basing point in its relation to collusive bidding would be of interest, he says.

Mr. Dickinson is unable to estimate how long it will take his investigators to gather their data or how long it will be before the justice department is in a position to make an announcement on the subject.

Any number of conferences have been held since the White House sent out a letter to all government purchasing agents in Washington asking that they communicate with the justice department on the matter of bids. Mr. Dickinson says his experts are having a difficult time trying to make these men understand just what is needed. He is looking for information on alleged collusive bidding in other commodities than steel, but steel is the chief item.

Undecided on Blanket Action

In connection with the specific instance of alleged collusion mentioned in Secretary Ickes' complaint, Mr. Dickinson said he was undecided whether a case would be brought just in this one matter or whether it would be tied in with other cases which might be found in steel and other commodities. Cases would be brought, he believed, against the specific companies involved, but whether the Steel institute or any other organization might become involved he would not hazard a guess.

Mr. Dickinson said he intended to have an extended conference with Attorney General Cummings in the near future. The reason that the statement promised by the attorney general on the bidding inquiry has not come through is laid to the fact that the department has not proceeded far enough yet to know just what it wants to do.

It was pointed out by Mr. Dickinson that the supreme court, in its recent sugar decision, held that the big question was whether parties had conferred to decide on quoting identical prices. That, he believes, is the main point to decide in this steel case.

Without making any guess at all, Mr. Dickinson seemed to be of the opinion that this case might well be a drawn-out affair, especially if it is decided to take up collusive bidding in other industries.

PRINCIPAL EFFECT OF WAR ON MACHINERY EXPORTS

If the civil strife has any effect on our iron and steel trade with Spain, it will only be in the export of machinery, according to government officials.

For the first five months of this year the United States exported $328,637 worth of industrial machinery to Spain, compared with $910,586 for the entire year 1935. During the first five months of this year the value of our agricultural machinery exports to Spain was $64,886, compared with $321,000 for the whole of last year.

Figures of the department of commerce show also that for the first five months of this year 2653 tons of iron and steel were exported from the United States to Spain, compared with only 262 tons for the same period of last year.

RAILROADS MOVE TO MAKE EMERGENCY RATES PERMANENT

Railroads last week petitioned the interstate commerce commission, asking that its technical procedure be so simplified that they might file and publish new tariffs translating the emergency railroad freight rate surcharges now in effect into permanent rates.

The commission recently refused the carriers' request to make the surcharges permanent, but extended the emergency rates for six months on most classes of freight.

The roads in their petition did not ask the commission to approve permanent tariffs "at this time," but merely to permit the publication subject to later investigation and suspension.

OVERTIME PAYMENTS MAY BE FORCED UNDER HEALY ACT

The legal division of the department of labor is reported to be hard at work in connection with the administration of the Walsh-Healy government contract act. A special board may be appointed by Secretary of Labor Perkins upon her return from Europe about the middle of August. There is every indication that around Sept. 1 regulations for administering the law will be made public. It becomes effective Sept. 28.

Under the law the secretary of labor can grant hour exemptions, but the general indications here now are that overtime will have to be paid by manufacturers. The question of "open market" purchases is one that is causing departmental officials much worry. The definition of a dealer is also causing some trouble.

Safety and sanitary regulations probably will have to be worked out with individual states inasmuch as they have their own laws. The $10,000 mentioned in the bill would be considered for each individual contract and not for a year's supply and several contracts.

Questions of this kind are now being thrashed out between the legal division of the labor department and government purchasing agents.

In connection with the plans for administration of this law, it is interesting to note that a black list

will be prepared. A list of persons or firms found by the secretary of labor to be violators of the act is to be distributed to all federal agencies by the comptroller general. Except upon recommendation of the secretary of labor, no contract may be awarded to such persons or firms or to any enterprise in which such persons or firms have a controlling interest until three years after the date of the violation.

According to the law, upon the motion of the secretary of labor, or upon the application of any person affected by a ruling of a contracting agency, or on complaint of anybody else, the secretary or an authorized agent may hold hearings and order attendance and testimony of witnesses and the production of evidence from any part of the United States. If necessary, the secretary may appeal to a district court for an order demanding such testimony and evidence. Failure to comply with the court order would be punishable.

RELIEF CLIENTS LOATH TO HELP FARMER IN THE FIELD

Solution to unemployment was the subject of considerable conversation here in Washington some weeks ago, but precious little has been heard about the problem for some time now.

At present representatives of farm organizations here are complaining that those on the relief rolls are unwilling to take farm jobs, even at relatively high wage rates. This complaint also comes from some of the New Dealers who have been most anxious about the relief situation. The same condition probably holds in other fields of endeavor but not much is being heard of these cases.

It is reported here that a number of independent studies are being made of this situation by various business organizations and that independent action is being taken by some of these organizations. They are also co-operating to some extent with various government departments. The results—no one knows at this time.

The story being circulated here says that in some cases the organizations are circulating lists of employables among manufacturers and other employers, urging that consideration for jobs be given suitable persons on relief.

STUDY OF NEW REVENUE ACT URGED ON CORPORATIONS

Much interest has been aroused in connection with the working out of the new revenue act, which is so different from anything that industry has ever encountered. Predictions were made freely while the bill was before congress that it would cause a great deal of trouble in many directions, principally through the surtax on undistributed profits.

Attention is being called to the fact that every corporation should avoid delay in appraising the effects of the new law on its operations. Delay may mean additional expense and difficulties in connection with dividend policies, with plans for construction and maintenance, for discharge of debt, accumulation of reserves and numerous other items.

Government channels so far have heard little about the application of this new law. Later, however, officials will be flooded with questions.

ASSERTS RUSSIAN PACT "ILLEGAL, UNAUTHORIZED"

In a letter to the state department last week, J. Carson Adkerson, president, American Manganese Producers association, contended that "the trade agreement recently concluded with Russia is an illegal and unauthorized document."

"The state department advises," said Mr. Adkerson, "that the Russian agreement was not concluded under the authority of the trade agreement act. We ask that the secretary of state show under what authority it was concluded. The Constitution requires approval by two-thirds majority of the senate. No such approval has been given.

"Manganese producers have never been given proper hearings in accordance with testimony of representatives of the state department before congress and in accordance with the law embodied in the act."

RUSSIA AIMS AT WORLD SUPREMACY IN ALUMINUM

The 1933-1937 report of the state planning commission of the U. S. S. R. shows Russia challenging America's supremacy in the aluminum industry. The report claims Russia will produce more than 80,000 tons of aluminum in 1937, almost three times as much as the annual production of the United States.

Russians claim that their industry, which was launched less than seven years ago, uses new methods of extraction devised by their scientists.

"We Russians do not find the development of our aluminum industry surprising," declares N. I. Arkhangelski of the planning commission. "It is simply one of the steps in the broad program to employ the talents and energies of all the Russian people. Russia needs aluminum for its households, for its transport systems, for every purpose served by light metals. With aluminum alloys, we are entering an aluminum age."

TWO LOANS AUTHORIZED

During the month of June the reconstruction finance corporation authorized a loan of $125,000 to the Wheeling Metal & Mfg. Co., Wheeling, W. Va. A loan of $6000 was also authorized to the Chicago Wire Iron & Brass Works, Chicago.

SENATE LABOR GROUP WILL MEET IN WASHINGTON

Members of the senate subcommittee on education and labor, charged with an investigation of free speech, intimidation of workers, arming of industrial plants and similar matters, probably will meet in Washington within the next week.

The only two members of this subcommittee are Senator LaFollette of Wisconsin, chairman, and Senator Thomas of Utah. The third member of the committee was Senator Murphy of Iowa, who was killed in an automobile accident recently. It is expected that Senator LaFollette will recommend another member to Senator Black of Alabama, who is chairman of the main committee. Senator Thomas returns from Europe and Senator LaFollette from Wisconsin to attend the meeting.

Attaches of the subcommittee are spending their time reading up on labor cases which might be of interest to the subcommittee when it begins its hearings. The hearings probably will not be very extended because only $15,000 is available for the whole investigation.

GERMAN EXPORTS OF PIPE AND TUBES MAKE GAINS

Appreciable progress both in domestic and export markets has been made by German producers of steel pipes and tubes during the current year, according to a report from Consul A. W. Klieforth, Cologne, made public by the commerce department. Barter transactions, however, have accounted for a larger share in the total turnover than have normal business dealings, it is pointed out.

Exports of steel pipes and tubes from Germany in the first four months of 1936 aggregated 114,985 metric tons, valued at approximately $7,570,000 compared with 51,314 metric tons, valued at about $5,000,000 during the corresponding period of 1935.

TRADE CONFERENCES SHOW INCREASE, SAYS COMMISSION

Federal trade commission officials insist that the voluntary regulation of industry through trade practice conference agreements continues to gain momentum in a wide range of industries. There has been a marked increase, they contend, in applications for conferences to draft trade rules.

The commission experts assert interest in these agreements has been growing since the demise of the NRA. Since that time 30 new agreements have been made, making a total of 180 now in effect. In addition 60 new applications for these conferences are pending.

Editorial

Administrators Can Make or Break Robinson-Patman Act

UNLESS all signs fail, buyers and sellers are due for a long period of annoyance at the hands of government agents who attempt to administer the Robinson-Patman price discrimination act.

Confusion over the provisions of the act is so rampant that industrialists, lawyers and others who have studied it intently are forced to consider two possibilities in regard to its application. First is the supposition that the law is so cumbersome and unwieldy as to preclude its workability and that as a consequence it will fail of its own deficiencies. Second is the chance that—bad as it is—it can be nursed along by intelligent administration to the point that it can be developed into a practical law.

The majority seems to feel that regardless of the merits of the two premises, the safe course for industry is to base its action on the second. In other words, assume that the act is to be put into effect, that government and business will muddle along in an attempt to make it work and that in the end some sort of reasonable legislation governing price discrimination will be evolved.

Burden of Proof Lies with Seller, Who Must Show That His Practices Conform to Law

Those who accept this conclusion are advised to proceed cautiously. In the first place, the federal trade commission, which will be entrusted with the administration of the bill, probably will be reluctant to give out any information that would help to interpret the act for the benefit of buyers and sellers. Thus far it is apparent that the burden of proof is going to be heaped upon the shoulders of the seller.

Without getting too deeply involved in technicalities it may be said that the broad intent of the law is to force sellers to treat all customers alike. In the metalworking industries, the effect of the act may force sellers to prove justification for every deviation from a single price policy. Depending upon the way the law is interpreted, this may necessitate proof by the seller that basing point quotations, quantity differentials, jobber discounts, etc. are not discriminatory. It is possible that every element of price, including extras for quality, charges for service, etc. may be open to question.

From this it is apparent that the law can be interpreted and administered in a way that will force radical changes in merchandising methods, price structures and the traditional relationships between seller and distributors and customers. The act is so broad in scope that if the federal trade commission and the department of justice choose to utilize its potential powers in entirety, they can precipitate a mild revolution in many present business practices.

Should they persist in this policy, the task of supervising and controlling price policies in all branches of trade would involve an organization as large and as intricate as the late NRA. Business and industry again would be subjected to the red tape, incompetence, delay, confusion, vindictiveness and other annoyances which finally caused the downfall of the codes—even before they were outlawed by court decision.

Danger Lies in Possibility Administrators Will Try To Do Too Much in Short Time

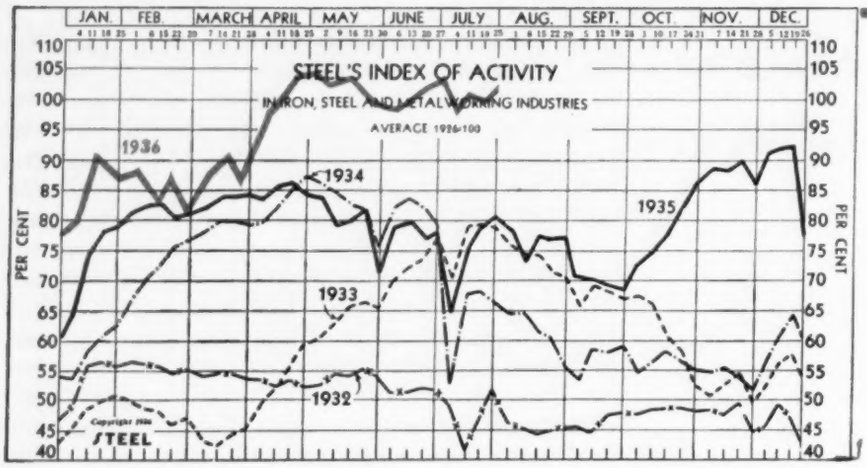
On the other hand, if the government agencies charged with administering the Robinson-Patman act could be prevailed upon to act moderately, to take up one problem at a time and to work gradually toward the elimination of the more obnoxious features of price discrimination, they might be able to do something constructive. Clearly the danger lies in the likelihood that the administrators will try to bite off more than they can chew.

In one or two respects, the law would be beneficial to the metalworking industries, providing it were administered constructively and not punitively. For instance, it would promote a greater interest among manufacturers in accurate cost accounting. This in itself would be a marked benefit, because today much confusion in price competition may be traced to inadequate knowledge of costs.

Another possible benefit would be the incentive for simplifying the machinery of sales and distribution. No one will deny that in some branches of industry, the chain of distribution and the attending structure of prices are unduly intricate and cumbersome. A constructively administered law might help to clarify these situations.

These and other advantages can easily be swept away by ill-advised administration. It would be far better for all concerned to go slowly with the new law and to be satisfied with moderate progress than to attempt to push ahead on all fronts and in doing so create confusion that would defeat the purpose of certain provisions of the law that are constructive in principle.

THE BUSINESS TREND



STEEL'S *index of activity in the iron, steel and metalworking industries gained 2.1 points to 102.0 in the week ending July 25:*

Week ending	1936	1935	1934	1933
May 16	103.1	80.5	82.4	65.2
May 23	100.4	82.8	81.9	66.1
May 30	98.6	71.9	75.7	65.3
June 6	98.8	79.3	82.3	69.9
June 13	99.4	80.0	83.6	72.1
June 20	101.0	77.3	81.8	73.9
June 27	101.9	78.4	79.4	77.0
July 4	97.5	64.1	52.3	71.4
July 11	100.9	76.5	67.8	79.1
July 18	99.9†	79.8	68.1	79.4
July 25	102.0*	80.8	66.4	78.8

†Revised. *Preliminary.

The index charted above is based upon freight car loadings, electric power output, automobile assemblies (estimated by Cram's Reports) and the steelworks operating rate (estimated by STEEL*). Average for* 1926 *equals* 100*, weighted as follows: Steel rate* 40*, and car loadings, power output and auto assemblies each* 20.

Favorable Indicators Impart Buoyant Tone to Business

SENTIMENT on the outlook in the metalworking industries has assumed a decidedly bullish tone, due to an impressive array of favorable business indicators.

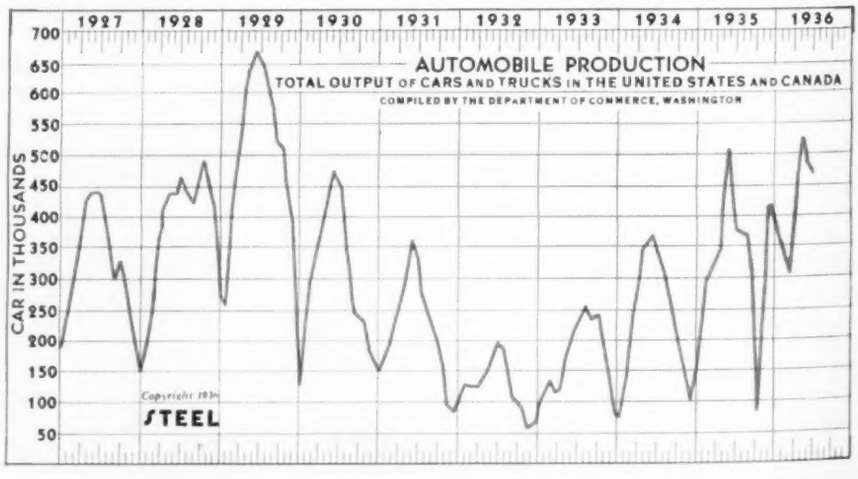
The most tangible factor in the present situation is the continued brisk pace of industrial activity. STEEL's index of activity for the week ending July 25 advanced to 102.0 from 99.9. This unseasonal gain was caused by increases in the rate of steelworks operations and in the output of automobiles, and continued good volume in freight traffic and electric power output.

Support for the current feeling of buoyancy also was derived from the earnings' statements for the second quarter. With rare exceptions, companies which have reported thus far have shown net incomes double or more the corresponding figures for the first quarter.

Another encouraging factor is found in the behavior of sensitive material markets. Quotations for iron and steel scrap are on the jump and in some districts dealers are encountering difficulty in obtaining supplies to fill orders. This condition usually has been a forecaster of impending increased activity in steel production. In the nonferrous metals, the copper, lead and zinc markets are buoyant due to heavy buying and a strong price situation.

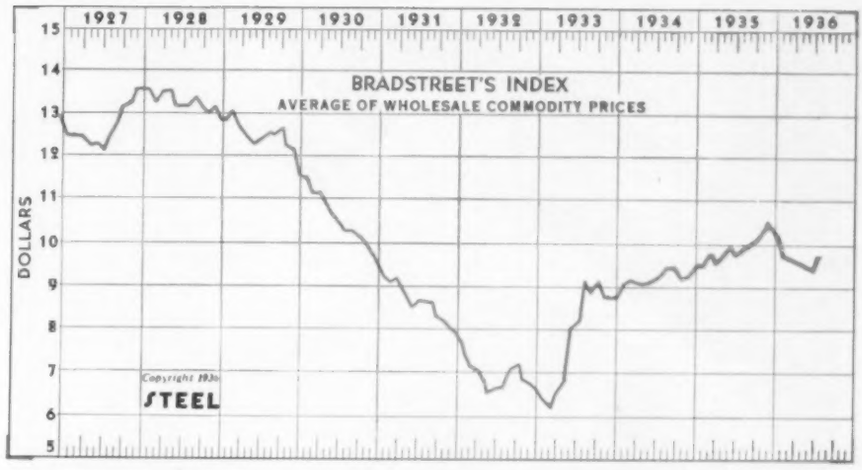
Continued active demand for equipment, including machine tools, tends to round out the evidence pointing to a strong situation in industry in the fall.

	1936	1935
January	377,306	300,325
February	300,874	350,345
March	438,945	447,888
April	527,726	477,059
May	480,571	381,809
June	470,887	372,085
July	.....	345,178
August	.....	245,092
September	.....	92,863
October	.....	280,356
November	.....	408,555
December	.....	418,303


1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
AUTOMOBILE PRODUCTION
TOTAL OUTPUT OF CARS AND TRUCKS IN THE UNITED STATES AND CANADA
COMPILED BY THE DEPARTMENT OF COMMERCE, WASHINGTON
CAR IN THOUSANDS
STEEL

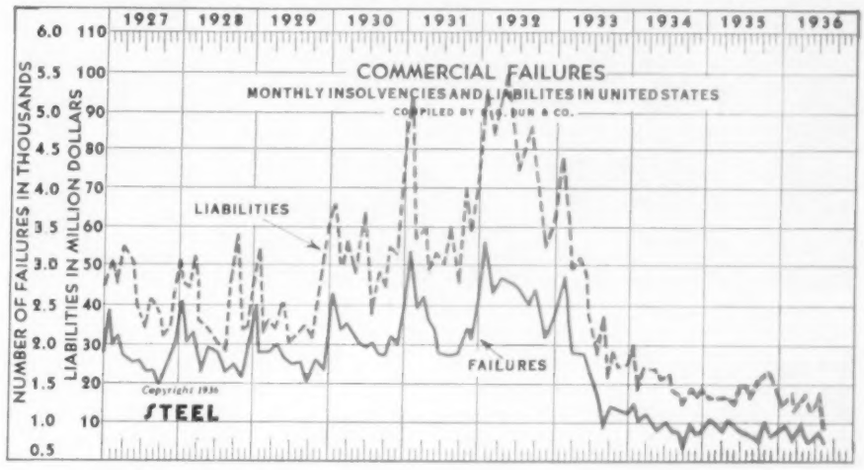
July 1 Price Index Registers First Gain Since December

	1936	1935	1934	1933
Jan. 1	$10.36	$9.49	$9.01	$6.53
Feb. 1	10.02	9.78	9.26	6.53
Mar. 1	9.92	9.79	9.17	6.54
Apr. 1	9.85	9.66	9.16	6.98
May 1	9.81	9.79	9.14	8.02
June 1	9.73	9.90	9.24	8.34
July 1	9.85	9.84	9.32	9.01
Aug. 1	.....	9.91	9.48	8.99
Sept. 1	.....	10.00	9.45	9.05
Oct. 1	.....	10.17	9.27	8.84
Nov. 1	.....	10.28	9.29	8.81
Dec. 1	.....	10.40	9.49	8.83


1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
BRADSTREET'S INDEX
AVERAGE OF WHOLESALE COMMODITY PRICES
DOLLARS
15 14 13 12 11 10 9 8 7 6 5
Copyright 1936
STEEL

Business Failures Decline Sharply in June

	Failures, Number		Liabilities, Dollars (000 omitted)	
	1936	1935	1936	1935
Jan.	1,077	1,184	$18,104	$18,823
Feb.	856	1,005	14,089	18,737
Mar.	946	976	16,271	18,522
Apr.	830	1,115	14,543	18,063
May	832	1,004	15,375	14,339
June	773	961	9,177	20,463
July	.....	931	.....	20,446
Aug.	.....	910	.....	17,845
Sept.	.....	806	.....	21,837
Oct.	.....	1,097	.....	22,243
Nov.	.....	927	.....	20,023
Dec.	.....	940	.....	17,442


1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
COMMERCIAL FAILURES
MONTHLY INSOLVENCIES AND LIABILITES IN UNITED STATES
COMPILED BY R. G. DUN & CO.
NUMBER OF FAILURES IN THOUSANDS
LIABILITIES IN MILLION DOLLARS
6.0 5.5 5.0 4.5 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0.5
110 100 90 80 70 60 50 40 30 20 10
LIABILITIES
FAILURES
Copyright 1936
STEEL

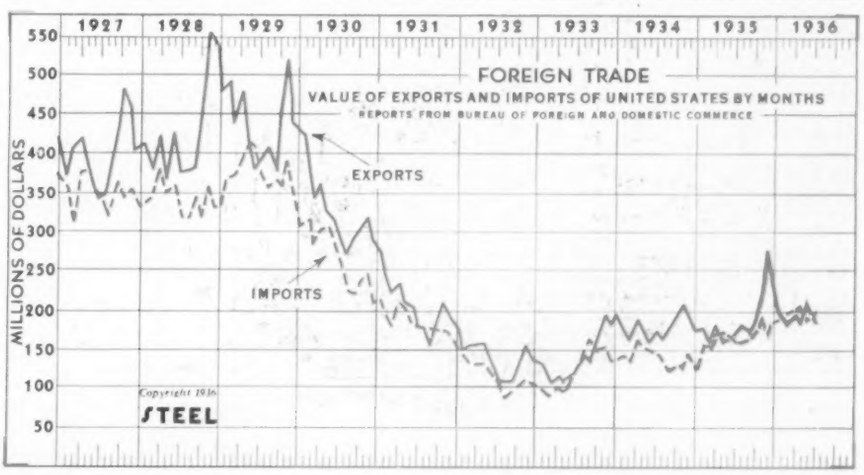
June Building Awards Show Slight Gain

	Square Feet		
	1936	1935	1934
Jan.	27,053,300	11,245,100	9,568,700
Feb.	20,856,700	9,670,300	8,176,300
Mar.	31,308,100	15,845,300	14,788,900
Apr.	37,490,200	19,917,300	14,207,100
May	36,362,700	22,276,200	14,664,400
June	36,883,900	22,878,800	13,986,500
July	.....	21,565,900	13,250,000
Aug.	.....	21,545,400	14,259,000
Sept.	.....	21,365,700	12,510,300
Oct.	.....	27,775,900	15,098,100
Nov.	.....	24,120,700	12,780,800
Dec.	.....	33,441,900	9,188,700

1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
BUILDING CONSTRUCTION
CONTRACT AWARDS IN 37 STATES
COMPILED BY F. W. DODGE CORP.
MILLIONS OF SQUARE FEET
100 90 80 70 60 50 40 30 20 10
Copyright 1936
STEEL

Merchandise Exports Down; Imports Up Slightly in June

	Dollars (000 omitted)			
	1936		1935	
	Exports	Imports	Exports	Imports
Jan.	198,654	187,482	176,223	166,993
Feb.	182,030	192,771	162,999	152,491
Mar.	194,790	198,686	185,603	177,279
Apr.	193,490	202,437	164,350	170,567
May	201,042	191,110	165,457	170,207
June	185,188	192,233	170,193	156,756
July	.....	.....	173,371	177,698
Aug.	.....	.....	172,194	169,030
Sept.	.....	.....	198,189	161,653
Oct.	.....	.....	221,215	189,210
Nov.	.....	.....	269,400	168,955
Dec.	.....	.....	223,737	186,648


1927 1928 1929 1930 1931 1932 1933 1934 1935 1936
FOREIGN TRADE
VALUE OF EXPORTS AND IMPORTS OF UNITED STATES BY MONTHS
REPORTS FROM BUREAU OF FOREIGN AND DOMESTIC COMMERCE
MILLIONS OF DOLLARS
550 500 450 400 350 300 250 200 150 100 50
EXPORTS
IMPORTS
Copyright 1936
STEEL

Using

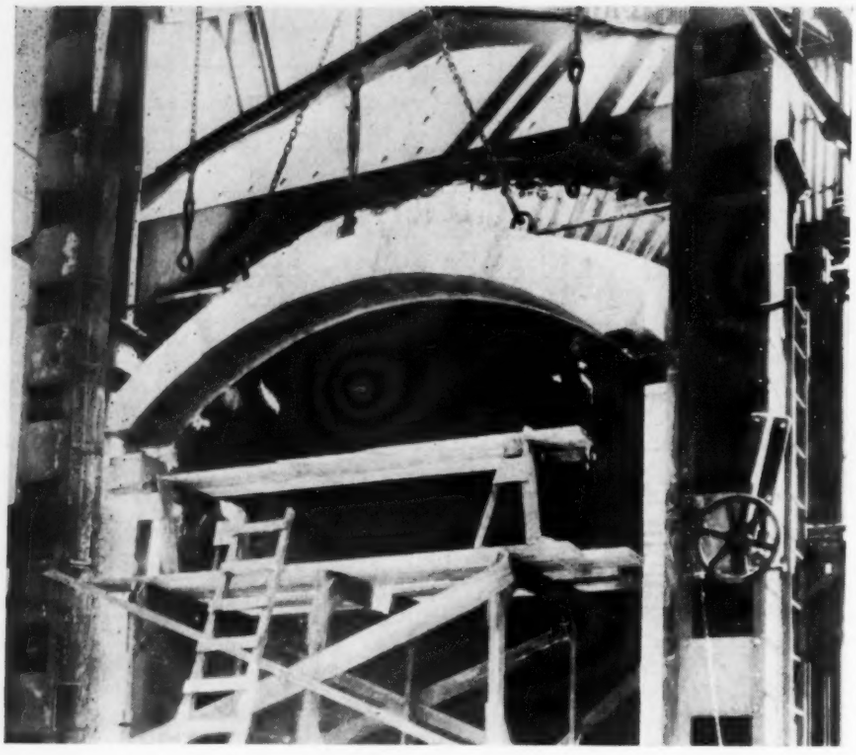


FIG. 1—This refractory concrete arch was hoisted into place on its piers in a large annealing furnace 24 hours after being poured. It has an overall length of 15 feet 8 inches

FIRST use of refractory concrete or insulating concrete in annealing furnaces was for lining doors, but as a result of its satisfactory performance in this service, the material is today finding extensive use in other annealing furnace elements, notably precast arches and car tops. Advantages gained by use of this type of concrete include long life and low heat losses, both of which exert an important influence on operating costs.

General characteristics of refractory concrete and applications of the material in various types of furnaces were discussed in an article in the Oct. 8, 1934, issue of STEEL. As pointed out in that article, the binder in the refractory concrete is an alumina cement having the same properties as regular building cement in setting and hardening when water is added to bind together crushed refractory aggregates.

Alumina cement is made of bauxite and is fused completely in its manufacture, thus it does not give off lime when it hardens after the addition of water and when later exposed to high heat. Used in a furnace lining after having been properly proportioned with appropriate refractory aggregates for the particular temperature of exposure, it combines with the finer particles of the

FIG. 2 (left)—The door of this annealing and heat treating furnace is lined with 9 inches of refractory concrete. Although the door is 15 feet high and 13 feet wide, inspections during service showed the expansion joints to be unnecessary. Fig. 3 (below)—The lining of this 14-foot square door is 8 inches thick and cast in one piece. It has been in use for nearly 2 years

Refractory Concrete in Annealing Furnaces

aggregates and develops fired strength or ceramic bond. Concrete made from this cement becomes hard and strong in about 24 hours.

One of the well-known alumina cements is Lumnite, a product of the Atlas Lumnite Cement Co., New York. According to this company, many annealing furnace doors now in use are lined with refractory or insulating concrete made with this cement. Door linings approximately 14 feet square have been placed with no joints; however, the practice in most cases is to line the doors in two or more sections by providing joints between the sections.

In one plant, working conditions were said to be so much improved and the heat loss reduced to such an extent by insulating concrete in the door of one furnace that the doors of all other annealing furnaces were lined with the same material. For this service any of the insulating grogs or aggregates now available can be used in the temperatures usually encountered. The proportions used have been almost universally 1 volume of alumina cement to 4 volumes of grog.

Good Service Records Shown

Fig. 3 shows a heat treating furnace door about 14 feet square lined with refractory concrete 8 inches thick. The concrete mix was 1 bag of cement to 4 cubic feet of crushed insulating fire brick grog. The door was placed in service in September, 1934, and the photo was taken in April, 1935. At the present time the door is still in service and throughout the whole period the furnace has been in intermittent operation.

The annealing and heat treating furnace door shown in Fig. 2 is 15 feet high, 13 feet wide and 9 inches thick and is lined with refractory concrete wth crushed fire brick as the aggregate. The mix was 1 bag of alumina cement with 3 1/3 cubic feet of ground fire brick ranging in size from ½-inch to dust and ½ cubic foot of crushed fire brick of 1½-inch down to ¼-inch in size.

The concrete was machine mixed and placed in November, 1935. The day after casting the concrete was given two coats of sodium silicate

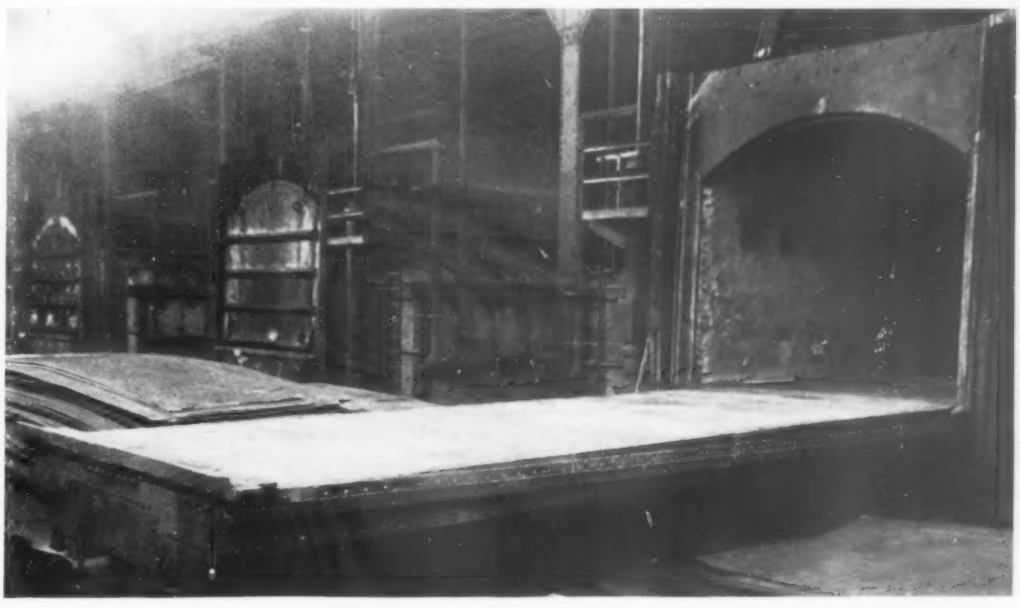
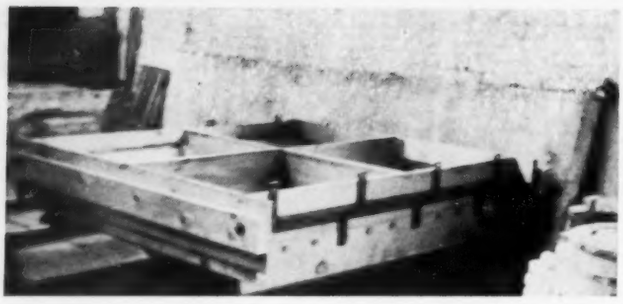


FIG. 4—The top of this furnace car is made of refractory concrete poured in one slab 12 feet wide, 40 feet long and 12 inches thick



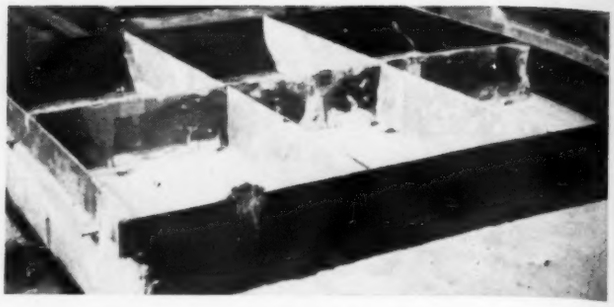


Fig. 5 (left)—Shown here is a wooden form used for pouring a refractory concrete car top in four sections. Fig. 6 (right)—Another type of form is built of steel plates and uses steel strips to form divisions while the concrete is being poured

solution. Placed in service about three weeks later, the door has withstood more than 50 heats at temperatures ranging from 1600 to 2000 degrees Fahr. The ½-inch expansion joints were not needed as has been indicated by inspections made during service.

Car tops using insulating or clay firebrick grog now are in use in many plants. While car tops as large as 12 feet wide and 40 feet long have been made with no joints, it seems advisable to cast the top in sections with paper-thin joints. These joints are formed by two methods as will be described.

Fig. 5 shows a wooden form set up for pouring a car top in four sections. In this case, opposite quarters were poured and the concrete allowed to take its initial set. Then the division boards were removed and the vertical faces of the concrete already in place were plastered with one thickness of a moistened heavy brown wrapping paper. The other two quarters were then poured. The paper formed a plane of weakness between the four sections and prevented the sections from sticking together.

Steel Form Used for Pouring

In Fig. 6 is shown a steel form which was fabricated from angles and plates. In this case the concrete car top was divided into six sections, this being done by placing strips of sheet steel in the form where the planes of weakness were desired. The steel strips were covered with paper by folding the paper up on each side of the strips and applying lubricating oil to make it adhere. Concrete in all sections was placed in one continuous operation. After the concrete was in place but still plastic the strips of steel were removed, leaving the paper in place to form thin joints. Surface finishing operations were carried on over the embedded paper.

A refractory concrete furnace car top 12 feet wide, 40 feet long and 1 foot thick is shown in Fig. 4. The mix was 1 bag of cement to 4 cubic feet of crushed fire brick. Compared with the previous top cost, the refractory concrete amounted to 45 per cent.

Perhaps the most unusual installation of refractory concrete in annealing furnaces and the one which has created the most interest is a section of a precast arch. This arch, shown in Fig. 1, is 13 feet 6 inches between piers, with an inner radius of 10 feet 3 inches, an outer radius of 12 feet 5 inches, a thickness of 18 inches, and an overall dimensions of 15 feet 8 inches.

Refractory Concrete Cast in Arch

The form in which the arch was cast was of wood and was made by making two sides to the proper radius and closing the ends. The floor constituted the bottom of the mold and was covered with paper to prevent the concrete from sticking to it. Two 1⅛-inch round bars were bent U-shape and cast into the concrete to serve as lifting eyes. These rods were wrapped with paper inside the form so that when the heat was applied the steel would have room for expansion without cracking the concrete.

The mix was carefully made using old fire brick aggregate not over 1½ inches diameter and screened fines, the proportions being 1 part cement, 2½ parts coarse and 1 part fines. Cast in one day, the arch was hoisted into position 24 hours later, as shown in Fig. 1. The arch is said to have given excellent service; Fig. 7 shows it after it had been in use 7 months.

Two precast refractory concrete arch sections for the main roof of same annealing furnace are shown in Fig. 8. These sections are 30 inches wide, 13½ inches thick, and have a span of about 14 feet 6 inches. They weigh 3 tons each and, of course, have no reinforcing. They were placed with a crane using a rope sling. The mixture was alumina cement and old fire brick crushed to concrete aggregate sizes.

These main roof arches have now been heated several times and apparently will give as good results as the front arch which has been in service for over a year. One of the interesting facts in connection with these arch sections is that they had been precast ahead of time as a section of the roof showed signs of failure. When this failure came, it required only 1½ hours to place the present sections.

Making of refractory concrete parallels closely the best practices followed in mixing, placing and finishing structural concrete. There is a difference, however, in the nature and gradation of the aggregate or grog used as compared with the sand and gravel aggregates employed for structural work. For refractory concrete, the aggregate or grog must have refractory properties.

The grog should range from a maximum size of between 1 and 1½ inches diameter, with all intermediate sizes down to and including a large percentage of dust. About 50 per cent of the total grog should pass a ⅛-inch screen. As with the grading of structural concrete aggregates, it is important to have the grog so sized that the voids between the larger particles will be filled with the smaller particles. The large dust content is necessary to provide proper workability in the concrete and to aid in the development of a good fired strength at operating temperatures.

Mixing Procedure

As stated previously, practically all the work done on annealing furnaces has been with a mix of 1 volume of alumina cement with 4 volumes of grog. The cement comes in 94-pound paper sacks containing 1 cubic foot. The grog is measured in a 1 cubic foot box.

After measuring, it is advisable to premoisten the grog so that a major portion of the water absorption is compensated for before the mixing is started. The measured materials, 4 cubic feet of grog and 1 sack of cement, are mixed dry by hand or in a concrete mixer until a uniform color is obtained. Then sufficient mixing water is added to give a puddling consistency which may be described as quaky or jelly-like, so that the concrete can be worked down into the forms in the same way that structural concrete is worked. This consistency is wetter or much softer

than a so-called ramming or tamping consistency.

The refractory concrete should be leveled off with a screed immediately after filling the forms. Usually this will cause some free water to rise to the surface and no other finishing is done until that surface water soaks back into the concrete. Then the concrete can be further leveled with a wooden float and this operation will likewise bring water to the surface.

Method of Curing

Approximately 6 to 8 hours after the concrete has been mixed it will start to dry out and a rise in the temperature of the mass will be distinctly noticeable. This indicates that the concrete is about ready for the application of curing water. The final test is to moisten a small spot on the surface and rub with a finger using considerable pressure. If the finger remains clean, the concrete is ready to be sprinkled lightly with water; if the finger is soiled, application of curing water should be withheld a while longer.

Curing should be started with small amounts of water, but after it is well under way the surface of the concrete should be kept damp by sprinkling every 20 or 30 minutes until it is about 18 hours old. This application of curing water aids in dissipating the heat of hydration developed by the cement and prevents the evaporation of the mixing water which is necessary for the proper hardening of the concrete.

A number of oil still furnaces have been built of large blocks made of alumina cement and an insulating aggregate. The temperature exposure in these furnaces is about the same as that in annealing furnaces. These blocks, it is stated, provide ample refractoriness and reduce the heat loss when compared with fire brick to one-third or less. If the blocks are made on a regular concrete block machine and the air space filled with a lean mix of cement and insulating aggregate of high efficiency, the insulating efficiency of the wall is increased.

So far as is known, no annealing furnaces have been built by this method of construction but it would seem to be particularly fitted to all furnaces operating at temperatures under 2000 degrees Fahr. and even higher when the higher refractory insulating aggregates are used. Blocks made of insulating concrete cost about the same as the fire brick. It is claimed that the concrete construction reduces fuel consumption through low heat loss, low heat storage and quick attainment of operating temperature when the furnace is started up.

Pure Metallic Manganese Produced by New Process

Development of a method for production of metallic manganese from its ores by leaching and electrolysis will be disclosed in the first report of the electrometallurgical laboratory soon to be issued by the bureau of mines, Washington. The pure metal so produced is in the form of bright, coherent sheets perfectly stable in air.

The electrolyte used is manganese sulphate, since this is the most convenient form in which to obtain manganese by leaching. The secret of success is an ingenious method of maintaining an absolutely constant acidity of the electrolyte. The process is claimed to be simple and inexpensive and adaptable to commercial utilization.

It is estimated that the power requirements for electrolytic precipitation will not be more than 4000 kilowatt-hours per ton of manganese. With large manganese deposits located within reach of power from Boulder dam and other federal projects, the power cost of producing high-purity manganese metal from the sulphate electrolyte obtained by leaching may be as low as $10 a ton.

Exchanger and Condenser Tube Specifications Given

Association of American Steel Manufacturers, Pittsburgh, has recently issued specification No. 352-36 for seamless cold-drawn intermediate alloy steel heat exchanger and condenser tubes. Specifications cover several grades of chromium-molybdenum and chromium-silicon-molybdenum seamless tubes, for heat exchangers, condensers and similar heat transfer apparatus, in sizes ½-inch to but not including 2 inches outside diameter.

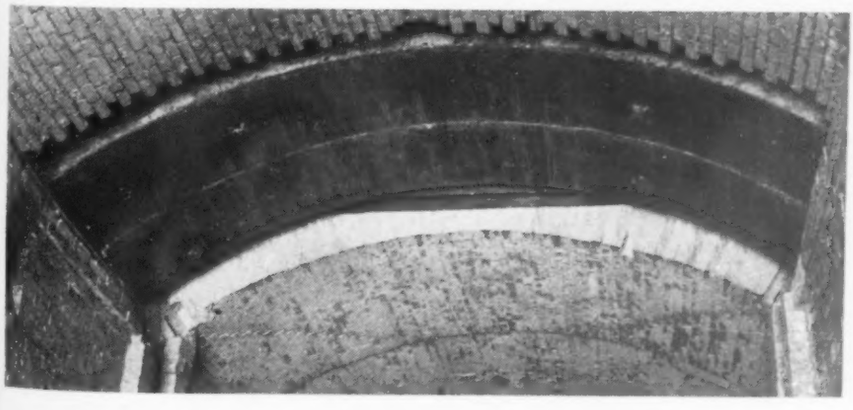
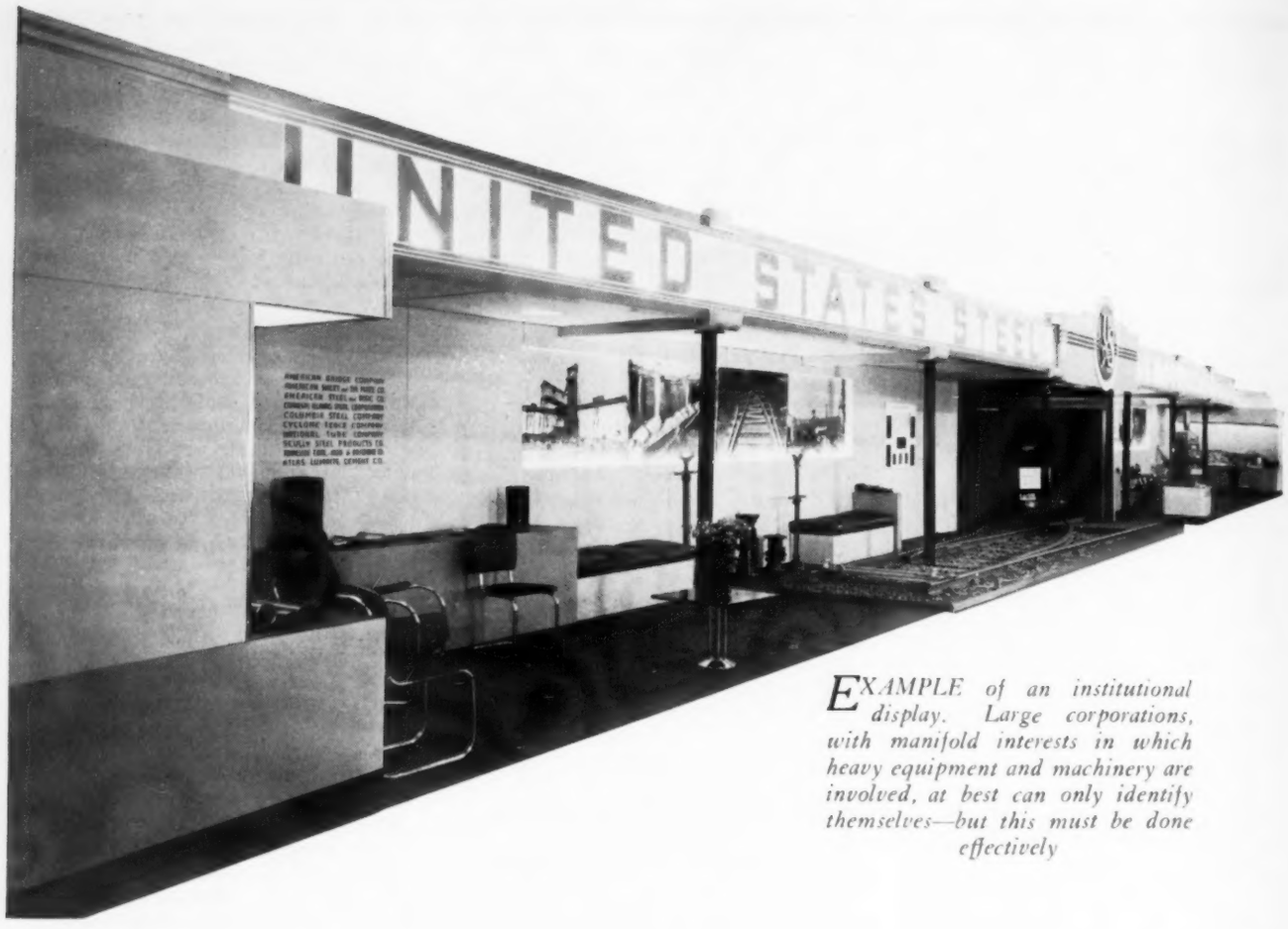


FIG. 7 (above)—After 7 months of service the arch of Fig. 1 appeared in good condition as shown here. A is the precast refractory concrete arch and B the brick-lined door raised to the spring line. Fig. 8 (left)—Two precast refractory concrete arch sections are used in the main roof of the annealing furnace shown in Figs. 1 and 7. These sections have a span of about 14 feet 6 inches and weigh 3 tons each



EXAMPLE of an institutional display. Large corporations, with manifold interests in which heavy equipment and machinery are involved, at best can only identify themselves—but this must be done effectively

Convention Exhibit—1936 Model . . . .

A Brief One-Act Industrial Drama with Appended Comment, by Playwright William Gardner, Gardner Displays, Pittsburgh

SCENE: *Office of the sales manager of International Equipment Corp.*

TIME: *The present.*

Sales Manager: "We've decided to go into the Great American National Steel Convention again this year, but I'm not enthusiastic about the idea at all. Too much grief and work involved. George, please find out what we spent last year on our conventions —and particularly how much the exhibits weighed, how much they cost to ship around the country—the whole story. The chief wants to know."

The Traffic Manager: "I've got all that information on my desk. I was going through my files only yesterday and got it out. I had a hunch you'd be asking for it pretty soon. Excuse me a minute."

Sales Manager: "Miss Gibbs, how many shows were we in last year?"

The Secretary: "Eight. It seems to me we could save a lot of money and time if we—"

Traffic Manager: "Well here's the dope, and it looks bad. Do you know we spent $10,714 on freight last year shipping this darned material around the country? And not only that! Here's nearly $1070 for handling charges to truckers for services between exhibit halls and freight yards. Other miscellaneous charges bring the total pretty close to $15,000."

Assistant Sales Manager: (At the door) "Did you want me?"

Sales Manager: "Yes, Harry, come in. We're just going over last year's bad news on our exhibit handling and shipping costs. Have you seen these figures?"

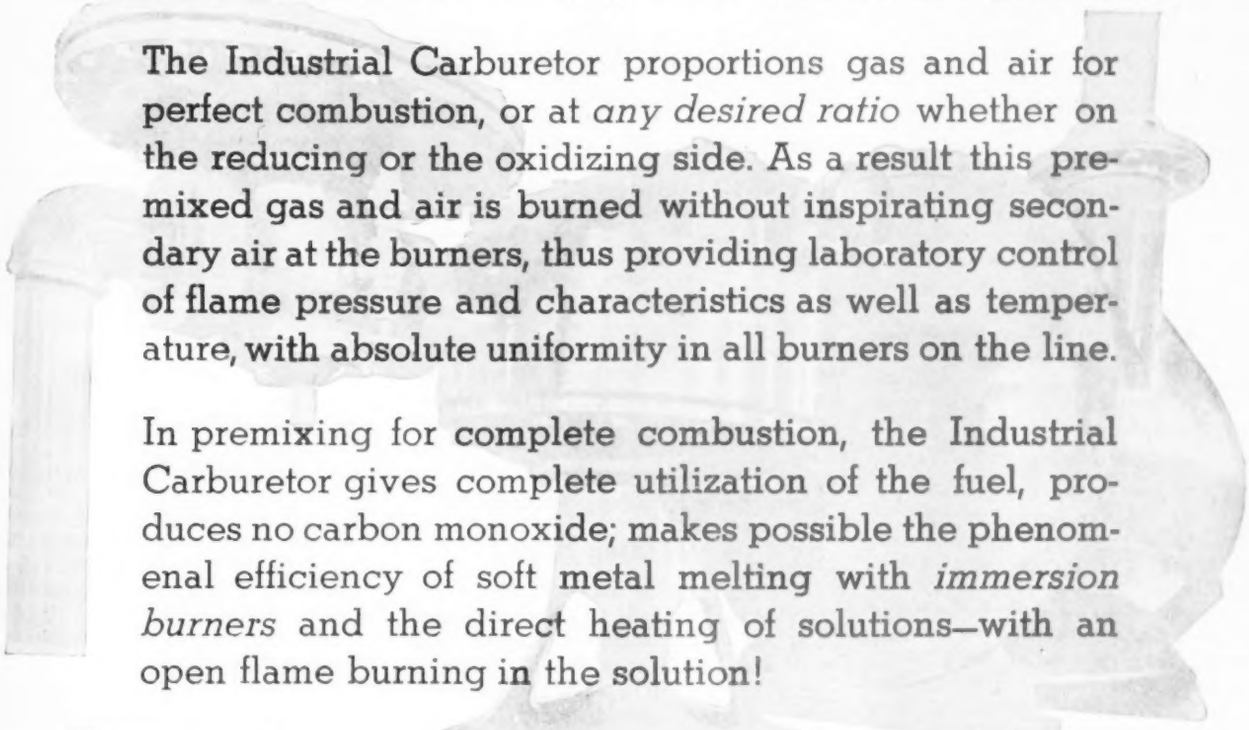
Assistant Sales Manager: (After glancing over the figures) "I was afraid they'd be high, but I had no idea they would total this much. Miss Gibbs and I were just talking about this situation yesterday. In my report of the Electrical Exposition last fall, the last one we were in, I gave you considerable information about how some of our competitors were handling their exhibits—and we're way behind the parade. They don't ship their machinery around from exhibit to exhibit. In the first place, that's out of date, and furthermore they say people don't look at those things any more. Miss Gibbs, may I see that report please?"

Sales Manager: "Let me see that. I don't believe I've looked at it." (Glances over it and passes it along to his assistant.)

Assistant Sales Manager: "I didn't think you had seen it. (Continuing)

THE KEMP
INDUSTRIAL CARBURETOR

. . . has contributed much to the spectacular forward march of steel during the past half dozen years . . . It will contribute more as more steel makers come to recognize its worth in terms of *production control.* The fact that it is saving money over superseded equipment can only be considered as a *plus* value.



The Industrial Carburetor proportions gas and air for perfect combustion, or at *any desired ratio* whether on the reducing or the oxidizing side. As a result this premixed gas and air is burned without inspirating secondary air at the burners, thus providing laboratory control of flame pressure and characteristics as well as temperature, with absolute uniformity in all burners on the line.

In premixing for complete combustion, the Industrial Carburetor gives complete utilization of the fuel, produces no carbon monoxide; makes possible the phenomenal efficiency of soft metal melting with *immersion burners* and the direct heating of solutions—with an open flame burning in the solution!

There is a place in your plant where the Industrial Carburetor can improve or control quality, speed production, save money. Our engineers are at your service. Write **The C. M. Kemp Manufacturing Co., 405 E. Oliver Street, Baltimore, Md.**

KEMP of BALTIMORE

TWO recently developed industrial exhibits, that at the left being made up of a number of unusually intricate stainless steel etchings. Booth at the right shows ingenious use of small space to get across an idea of the wide range of the company's products

Our principal competitor at this electric show was directly across the aisle from us. His display was far more attractive than ours. Instead of machinery, he showed working models of two new processes, and on a moving belt a complete line of his products, and believe me he had the crowd all the time.

"I happen to know that the total cost of the display, including the display material and the models, which they can use over and over again, was less than our freight cost from the plant to Pittsburgh and back again. All we've got to show are a lot of freight bills. In my conclusion—"

Sales Manager: "That's enough. We've already reached the conclusion. No more tons and tons of equipment and machinery. Miss Gibbs, please phone the Blank Display Co. and have one of their idea men come down at three this afternoon. Meanwhile, Harry and I will get together for lunch and figure out what we want to exhibit and have the display company man get up a sketch."

* * *

The above little drama—without music—is being enacted currently in many large manufacturing concerns. The trend of industrial expositions, trade shows, and traveling exhibits is away from heavy tonnage, large bulky equipment that is hard to handle, and toward the attractive, artistic booth presentation of the company and its products, territories served, its sales policies—its whole sales story.

Especially is this trend definite among steel producers and equipment builders whose products are both bulky and heavy, and whose costs of shipping are prohibitive.

Many of the large companies in the steel industry have given up the shipment of heavy machinery and equipment in favor of the simpler and far more satisfactory use of visual display—using light, color, and motion to attract attention and to tell the story. This is particularly true in the convention display field where exhibits must be shipped, unpacked, set up, torn down, repacked, and reshipped—all within a week.

There are several display companies making a specialty of convention exhibits. In the past year alone, the Gardner organization in Pittsburgh and New York has designed, created and built displays for the following large companies in the steel and related industries: United States Steel Corp., Bethlehem Steel Co., American Rolling Mill Co., Pittsburgh Steel Co., Carnegie-Illinois Steel Corp., Allegheny Steel Co., Mackintosh-Hemphill Co., Blaw-Knox Co., and Mathews Conveyer Co.

Longoria Reveals Details of Sale of Welding Rights

Further details of developments behind the Longoria low-temperature welding process (STEEL, June 22) came to light last week in an interview between New York ship reporters and Dr. Antonio Longoria, inventor of the method, who had just arrived by boat from California.

Dr. Longoria stated that exclusive rights to the welding of ferrous metals by his process were held by United States Steel Corp.; that all rights to the welding of nonferrous metals were held by a syndicate in which the Yoder Co., Cleveland, owns a substantial interest; that sale of the various rights in this country and earlier sale of rights for welding nonferrous wire screen in Great Britain had yielded him "about $6,000,000".

No information is available from United States Steel Corp. as to plans for commercial application of the process which permits welding of thin material with remarkable savings in power consumption and equipment cost. The Yoder Co. reports that it is now working out methods of applying the process to various forms of nonferrous metals, chief interest of this company probably being in the building of the necessary machinery to do the work. As previously described in STEEL, the process involves welding of metals in contact by "molecular shock" induced by high-frequency current.

Earlier this month news dispatches in Cleveland papers reported filing of suit against the Yoder Co. and Dr. Longoria in the name of the Bridgeport Brass Co., seeking to compel Dr. Longoria to accept $600,000 for the process, claiming a prior agreement with the inventor.

Proposes New Revision of Firebox Boiler Standards

The division of simplified practice, national bureau of standards, has mailed copies of a proposed revision of simplified practice recommendation R157, steel horizontal firebox heating boilers, to all interests for consideration.

The original recommendation, which was to have become effective on July 1, 1935, was held in abeyance pending modifications and changes to insure more general adoption.

The revised recommendation, which covers a simplified schedule of standard ratings and pipe connection openings, will be promulgated when an adequate volume of acceptance has been recorded.

Copies of the proposed revision, in mimeographed form, may be obtained without charge from the division of simplified practice, national bureau of standards, Washington.

Progress in Steelmaking

Direct-Flow Blast Furnace Tuyere Is Built with Double Compartment

AFTER considerable research and careful study of many failures a direct-flow blast furnace tuyere has been introduced in England. The new tuyere provides a definite and effective means for direct circulation of the cooling water around the nose through a simple construction, as shown in the accompanying illustration.

The principle of the cooling medium is the formation of a separate compartment around which the cooling water flows. The tuyere is cast with rims around the interior walls at a suitable distance from the nose; integral with the exterior rim a series of plates are cast in segment form. These plates project upward to facilitate the removal of the sand core but later are hammered down onto the upper face of the interior rim by suitable tools inserted through the inlet, discharge and washout openings. By this arrangement the tuyere is divided into two separate compartments. The inlet water is delivered to the lower compartment where it is circulated around the nose and then deflected to the main compartment by a vertical baffle which is cast integral with the tuyere.

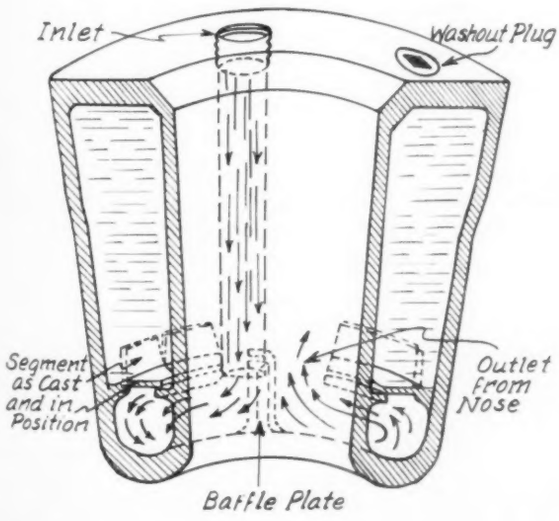
Metal baffle plates are cast purposely from the exterior wall of the tuyere to assist in the cooling. They afford an additional surface area of about 80 square inches which is equivalent to an increase in the cooling surface of nearly 75 per cent considering the nose area only. The baffles, in addition, greatly assist in conveying the heat through conduction from the nose of the tuyere to the cooling water.

Bubbles Are Eliminated

Any bubbles which form on the interior surface of the tuyere are carried away as soon as formed. According to experiments conducted by a Japanese engineer, burning of blast furnace tuyeres is caused by the evolution of air bubbles which eventually are superheated at the nose and converted into bubbles of steam.

The tuyere may be operated with a small quantity of water to suit blowing conditions but a plentiful supply at all times is recommended. The cooling water at its lowest temperature is discharged into the lower compartment where it circulates around the hottest part of the tuyere before being delivered to the upper compartment and thence to the discharge pipe.

The tuyeres are hammered on the nose to increase the density and at the same time to afford a smoother and harder surface. By this arrangement the nose of the tuyere is better able to shed the globules of molten iron on their way from the fusion zone to the hearth of the furnace.



Direct circulation of cooling water around the nose is afforded by this design of blast furnace tuyere which is built with two separate compartments

• • •

Prevents Unsafe Mixtures

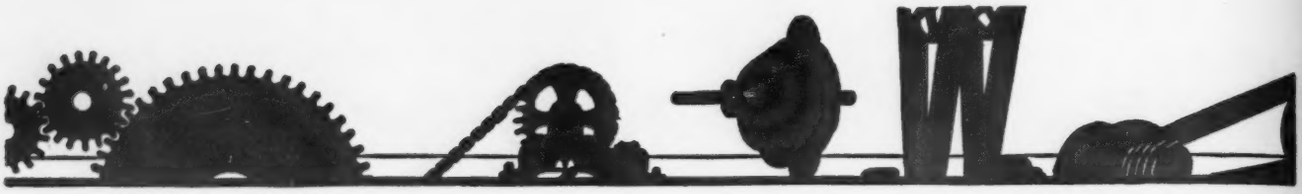
Propane and blast furnace gas will be mixed and used to meet peak demands at a steel plant in the Great Lakes district. The pipe system in the gas mixing machine is equipped to achieve the desired volumetric mixing, with pressure regulators operating butterfly valves under calorimeter control. For mixing air and propane gas, there are two displacement pumps connected by a fixed drive shaft, one for sending air into the mixture, the other for propane gas. Engineers have made the mechanism proof against production of an explosive mixture of propane gas and air by setting it up to be driven by the propane gas under pressure. Mixers of this type usually are driven by motors, and unsafe mixtures may result when the operation is not regulated by the flow of the gas.

• • •

Affords Rustproof Surface

Protection of steel buildings and bridges, water tanks, pickling department framework, gasholders and other steel and metal structures is had by the application of a newly developed bituminous product which is claimed to dry waterproof in 24 hours to a smooth uniform surface. The product, which may be used as a primer or a combined primer and finishing coat, is said to be oilproof, rustproof and highly acid resistant.

Power Drives



Adequate Drive Service Records Help To Reduce Maintenance Expenses

IN NO part of an industrial plant are adequate records of equipment more necessary than in the control of drives. This is especially true of motors and controls but is just as essential with speed reducers, chains and other types of drive units. Belt records will be discussed separately, since they are more complicated.

Good motor records not only contain all information on the nameplate, but also the purchase record, including cost, location and all changes, repairs as they are made and the costs. With such a record any equipment causing trouble repeatedly can be investigated to see whether the motor or its load are at fault. The same is true of speed reducers, chains, control and other equipment.

May Be Kept in Duplicate

The basis of the record system is the equipment number. The record may be filed according to department where used, equipment number, size and type, or other methods most convenient to the transmission engineer or maintenance department. Sometimes both keep such records in addition to the record maintained by the accounting department, which generally is not easily or quickly available.

One mistake often made is to use a card too small for entering complete data. Many plants use an 8 ½ by 11-inch card while some try to get by with a 3 by 5-inch record. With adequate data, even down to belt width and weight, pulley diameter and face, shaft diameter and other detailed information many changes can be planned in the office without first going to the drive to "look it over" in case of a breakdown and forced substitution ordered from motor records in the "spares" file. The same record of sizes of spare pulleys and the like, is also helpful at that time although a record of such attachments in use would be burdensome.

Belt records, except for main drives, are also burdensome because of the large number of records involved. When new types of belts are installed on test such records are beneficial. On some plants machines having belts under test carry a special marking or tag to indicate to the beltman that all servicing on that particular unit is to be reported. Sometimes belt records are kept in a single department or on special types of machines for a while to learn how the belts are operating and amount of servicing required, as a basis for recommending changes in methods or servicing. Except for special purposes and main drives belt records are seldom used regularly on all drives.

In servicing speed reducers and chain drives, oil changes are recorded. Records for control equipment, if kept on individual cards instead of on the motor records, are usually filed with the motor record. One advantage of keeping the control record on the motor record card is that if a machine requires several changes in contol or the control gives serious trouble an examination of the card so indicates. It is then advisable to make a thorough examination to determine the cause.

Relying on the memory of the maintenance men or "front office" records for the service records of equipment is not satisfactory. A good record will pay for its upkeep many times over.

♦ ♦ ♦

Out-of-Round Pulleys

WOODEN pulleys after long service, particularly on shock or intermittent loads, sometimes become out of round. This condition transmits a jerk to the belt which emphasizes the shock load and so transmits a double shock to the shaft or countershafts.

Sometimes alternate wet and dry conditions or a slipping belt are responsible but faulty installation is a more common cause of pulleys running out of true. Often the wrong type of interchangeable bushings, old compressed bushings used with new bushings, or home-made bushings are the cause of out-of-round operation of such pulleys. In some cases improper tightening or rough handling may be responsible. The same is true of split steel pulleys.

When a wooden pulley is actually out of true it may be turned true in a lathe, using a mandrel of shaft diameter and the proper bushings and bolts, preferably the ones taken down with the pulley unless they have caused the condition or are obviously in poor condition.

The turned surface should be given a coat of orange shellac and after drying thoroughly, sandpapered and shellacked again. When dry the pulley is again ready for service.

♦ ♦ ♦

Every plant manager realizes the importance of proper machines and layout for results in production. Similarly, proper equipment and planning will help increase effort and reduce costs in maintenance.

♦ ♦ ♦

Spare or repair parts are kept for an emergency. However, unless these parts are carefully stored and guarded against rough handling and moisture they may be as useless when needed as the element they are to replace.

♦ ♦ ♦

Installing drives of low efficiency may cost less originally but additional power consumption and extra maintenance or servicing can soon eat up the original savings and make the installation a permanent expense.

♦ ♦ ♦

Even though some natural wear of rotating and sliding surfaces may be expected, proper lubrication and lubricants will prevent abnormal wear.

BOLT WIRE
CHAIN WIRE
COAT & HAT HOOK WIRE
COLD HEADING WIRE
HINGE WIRE
MACHINE SCREW WIRE
PAIL BAIL WIRE
RIM WIRE
RIVET WIRE
SCREW STOCK WIRE
SPOKE WIRE
SPRING WIRE
WOOD SCREW WIRE
and seventeen other grades.

UNIFORMITY • • • •

A shop-test of YOUNGSTOWN Manufacturers Wire will quickly prove its accurate adherence to specified diameter and quality of surface. At the same time you will find that Youngstown Wire gives you that consistent uniformity of working qualities so necessary to smoothly-operating production schedules. Bright wire can be furnished in all sizes from 18-gauge to $^5/_8$" in diameter; galvanized from 18-gauge to $^5/_{16}$"; coppered from 18-gauge to $^3/_8$".

THE YOUNGSTOWN SHEET AND TUBE COMPANY

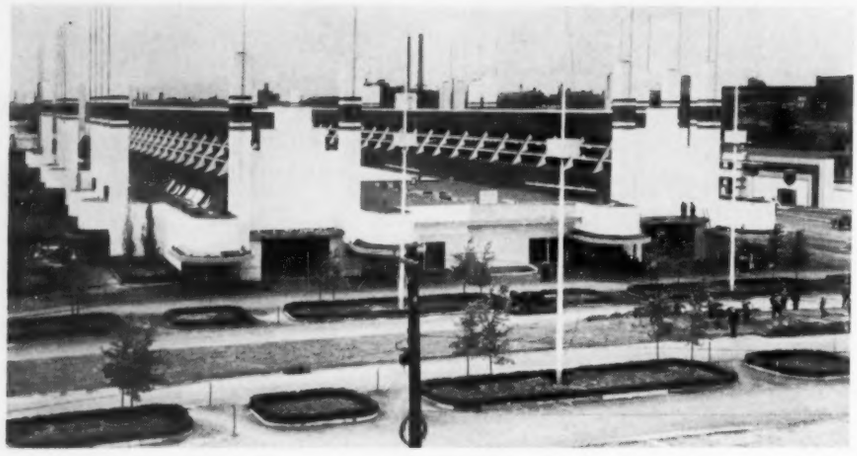
Manufacturers of Carbon and Alloy Steels
GENERAL OFFICES: YOUNGSTOWN, OHIO

625

MANUFACTURER'S TRADE MARK YOUNGSTOWN WIRE

YOUNGSTOWN

SHEETS • PLATES • TUBULAR PRODUCTS • CONDUIT • TIN PLATE • BARS • RODS • WIRE • NAILS • UNIONS • TIE PLATES AND SPIKES



Products of allied automotive industries in the Great Lakes district are displayed in the spacious double-bay Automotive building. The steel frame construction of this building is unique

Observed at the

Great Lakes Exposition

Cleveland, June 27-Oct. 4

COILS of 90-inch hot-rolled and cold-reduced steel strip sheet serve as posts in the exhibit of National Steel Corp., Pittsburgh. This material was produced by National's subsidiary, Great Lakes Steel Corp., Ecorse, Mich., on the world's largest 4-high continuous strip mill. Another coil, laid endwise on the floor, has one end stretched out over a wooden framework and on top of this section rests an all-steel automobile top formed from the same material. Other pressed automobile parts, such as fenders, body panels, etc., are exhibited close at hand.

♦ ♦ ♦

BLOW-PROOF CHIN FOR JOE

Provoking comment and speculation and helping to draw passersby into the Porcelain Enamels building is an action exhibit outside the front entrance. A miniature cannon fires 1-inch steel balls endlessly—at the rate of 3600 an hour—against a vertical sheet of porcelain enameled iron. Though the projectiles travel only 5 feet and strike with a resounding thump, the white enamel shows no trace of injury. As one spectator was heard to remark, "Boy that kind of enamel is just what Joe Louis needs for his chin!"

♦ ♦ ♦

EMPHASIZE STEEL IN HOME

American Rolling Mill Co., Middletown, O., has made liberal use of stainless steel and porcelain enamel on steel in the construction of its exhibit. Attracting attention of passersby are two large stainless steel etchings in color executed by Gardner Displays, Pittsburgh. A revolving case containing models of a modern kitchen, bathroom and laundry, illustrate the use of steel sheets in the home. Cabinets, stove, refrigerator, sink, bathroom fixtures, washing machine, laundry tubs, heating plant, etc., are fabricated from pressed steel. Mounted on top the case is a model of the steel house which the company's subsidiary, the Insulated Steel Construction Co., has designed and built for the housing research project of Purdue university, West Lafayette, Ind.

♦ ♦ ♦

NOT A PARK—AN ORE MINE!

A feature of the display of the Cleveland-Cliffs Iron Co., Cleveland, is a large map of upper Michigan showing the properties of that company. Laid out on the left-hand side of the exhibit is a model of the Cliff shaft ore mine at Ishpeming. The models portray accurately the ornate construction which features the shaft houses and other buildings at this mine. The area is landscaped to resemble a park. A model of the ore dock of the Lake Superior & Ishpeming railroad ore dock is shown at the right side of the exhibit.

♦ ♦ ♦

FROM RAW MATERIAL TO STEEL

Under the caption "5 tons of raw material are required to make 1 ton of steel" the United States Steel Corp., New York, displays a pile of iron ore, a pile of limestone, a pile of coke and a 6-foot length of 18-inch heavy I-beam. Thus is the observer educated as to the nature and quantities of raw materials from which steel is produced.

Adaptability of steel house frames to all types of exterior and interior treatment, various methods of insulation and a variety of designs are demonstrated in the open sections of the steel house exhibited by the Republic Steel Corp., Cleveland. The house is a product of the company's subsidiary, the Berger Mfg. Co., Canton, O.

Welding, etc. . . .

by Robert E. Kinkead

IN THIS column, the author, well-known consulting engineer in welding, is given wide latitude in presenting his views. They do not necessarily coincide with those of the editors of STEEL.

Localized Heating

A CLEVELAND manufacturer has recently put into commercial use apparatus for electrically hardening carbon steel surfaces. A magnetic field set up by high-frequency current induces eddy currents in the surface to be treated, bringing it to a predetermined and accurately controlled temperature, from which it is quenched to give precisely the hardness desired. The method is similar to that used by the oxyacetylene process except that electrical energy is used in place of the heat of the oxyacetylene flame.

The principle upon which the new high-frequency surface hardening process is based is local application of heat. This and many other valuable and important processes are the outgrowth of modern welding methods. There is increasing evidence that local application of heat as first used for welding is likely to become more important for uses other than welding than for welding itself. Flame cutting, for instance, is far more important commercially than flame welding. Use of resistance welders for local heating in forging and swaging operations is developing rapidly. The electric arc is in use for surface alloying operations in addition to welding.

Research, invention and development explain the prosperity of the welding industry. The industry has never recognized any limitation except that its processes and products be useful and beneficial to industry at large.

Late Reports from Europe

SOBER contemplation of what is happening among the nations of Europe and Asia cannot fail to lead to the conclusion that heavy steel is in line for a vast expansion in production. The welding industry can muster its feeble co-operative impulses to such a degree as to assure that cargo ships and freight cars will be welded. The tendency now is for herds of salesmen to pester manufacturers who already use welding rather than to develop new uses for the processes.

The next world war undoubtedly will see more merchant ships sunk than were sunk in the last war. Aircraft, more and better destroyers and submarines, together with the newly adopted crash boat strategy will assure that result. Land transportation in freight cars has not been outmoded by motor trucks so far as wartime conditions are concerned.

Whether the war is in this hemisphere or the other, the manufacturing plant in this country will have to carry the load. The job will be one involving millions of tons of heavy fabricated steel. Production lines will have to be organized that will drop off a welded freight car every five minutes and other lines to launch a 10,000-ton welded ship every other day.

Businessmen returning from Europe late this summer will offer testimony on the subject which will make the above prediction sound considerably less fantastic.

Obsolete Equipment

AFTER welding equipment has been in operation three years, it is time to look around for something better. If the financial powers were on the job when the equipment was purchased, it has been amortized by the end of three years' operation.

This condition is particularly acute in the arc welding field where a considerable amount of equipment suitable only for bare wire welding is in use. As compared with the best coated welding rods, bare wire welding will cost 30 to 50 per cent more for labor on production jobs, will produce a weld of inferior quality in tensile strength, corrosion resistance, and resistance to fatigue. Such welding equipment, used with bare wire or coated rod of a size too small to give the greatest speed of operation, is simply too expensive to use.

There is no monopoly controlling the building of good welding machines. But each manufacturer has features on his equipment worth considering. They are sharply competitive and prices of modern equipment are surprisingly low. Customers who wait until early fall to replace obsolete arc welders will probably wait three to four months for delivery.

Welding Society Announces Program For Annual Meeting in Cleveland

AMERICAN WELDING SOCIETY has announced tentative details for its seventeenth annual meeting to be held in Cleveland, Oct. 19-23, in connection with the eighteenth National Metal congress and exposition. Hotel Cleveland has been named headquarters and all technical sessions will be held there.

According to the program, sessions will be held morning and afternoon, Monday through Thursday, and the first session will be a business meeting. The two Tuesday sessions will be devoted to fundamental research in welding and the two Thursday sessions will be conducted jointly with the American Society of Mechanical Engineers. Officers and directors will attend a dinner meeting on Monday evening.

Entertainment features of the program include a stag entertainment on Wednesday evening and the annual dinner-dance on Thursday evening. Members of the society are invited to participate in two welding sessions to be held by the American Society of Mechanical Engineers on Friday.

The tentative program, listing papers and authors, is as follows:

Monday, Oct. 19

MORNING

Business Session

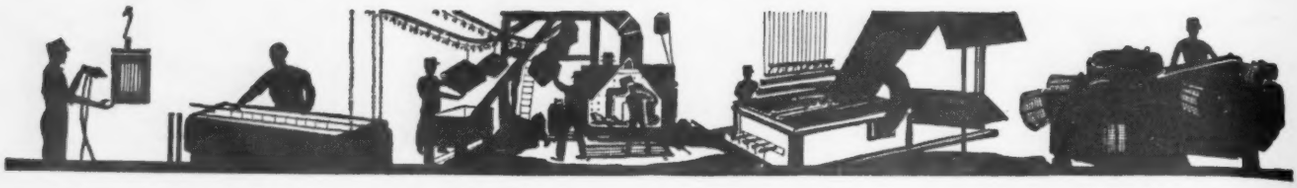
Report of President J. J. Crowe, Air Reduction Co., Jersey City, N. J.
Election of officers.
Award of Samuel Wylie Miller memorial medal.
Committee reports.

AFTERNOON

"Fundamentals of Metallurgy of Metals," by E. S. Davenport and Dr. R. H. Aborn, United States Steel Corp., Re-

(*Please turn to Page* 58)

Surface Treatment and Finishing



Modern Industrial Ovens Designed To Suit Individual Requirements

BY RALPH BYRON
Manager, Heater and Oven Department,
J. O. Ross Engineering Corp., New York

MODERN manufacturing methods have led to the development of industrial ovens to the point where individual installations are no longer simply ovens purchased because they were the least expensive or because of individual preference. The modern industrial oven is a product of engineering skill which has been gained over a long period of experience. For most industrial purposes there is no such thing as a "standard oven"; no two plants operate under identical conditions, and such factors as type of heat supply, temperatures to be maintained, floor space, corrosion problems, type of products to be heated, methods of handling and many others must be taken into consideration and analyzed before the oven can be designed. The resulting oven will be individual in design although it may be constructed from standard materials and units.

Temperature Affects Design

The problem of oven construction is an old one, going back many centuries to the use of clay and bricks, a method which, using certain materials, is still advisable in certain cases. The use of ceramic materials now, however, is confined largely to temperatures over 1000 degrees Fahr., a range which properly belongs in the furnace classification and will not be considered here. At the other extreme, the use of lumber, wall board and other similar structures is found for temperatures under 100 degrees Fahr., where the use of an effective insulating material and oven design are not of prime importance. It is in the range between these two temperatures where design, type of construction and materials used are most important items. This is the range and type of equipment commonly known as "industrial ovens," which is used widely in metal finishing operations.

In this range, the predominating type of construction is the insulated panel, made of two sheets of metal separated by rock wool, aluminum foil, or other insulating material. The thickness of panel is determined by the temperature to be maintained, greater insulation being required for the higher temperatures. The choice of insulating material is determined by a number of factors, most important being the temperature range. For example, an asbestos paper will not withstand the same temperature as will rock wool. Or, to cite a specific case, a high vertical panel filled with rock wool must have the blankets suitably reinforced to prevent sag or bulge. Weight or heat retention is another factor and aluminum foil, for example, has little mass and consequently little heat retention.

Likewise, the type of metal used for the panels depends on the conditions under which the panels will be used. Corrosion or appearance requirements may dictate the use of galvanized iron, copper, aluminum, alloy steel, or vitreous enamel sheets. Ovens used for the drying and baking of organic finishing materials such as enamels and varnishes, generally are built of steel, painted to suit the plant surroundings.

Standard panels are quickly and easily assembled with a minimum of labor

Not only are the materials selected important, but also the construction of the panels themselves. They must have strength and rigidity to avoid becoming distorted in service; they must have no projections to interfere with cleanliness or appearance; they must have tight joints to prevent leakage; they must have a minimum of through metal to prevent heat loss; and they must be adaptable to suit the structure to which they are attached. Typical panels, their type of construction and method of assembly are shown in the accompanying illustration.

Panels Permit Alterations

Panel construction permits a wide choice of wall thickness, insulating material and metal, and at the same time permits the greatest economy in the construction of ovens of individual design through the use of standardized materials. Panel construction permits complete fabrication in the shop and easy assembly in the field. It permits increasing oven size at a later date and lends itself to dismantling and reassembling at a different location, if necessary. Panel construction may be used for batch-type ovens, tunnel-type ovens or overhead conveyor ovens. It has been used for ovens approximating a 6-foot cube, and for ovens several hundred feet long. It is the type of construction adopted by the majority of the automobile manufacturers.

The method of heating presents a problem which can be solved only after a careful analysis of the local conditions of fuel supply and requirements of the manufacturing process requiring the oven. Both the source of heat and the method of application must be studied.

The conventional sources of heat are steam, electricity, gas, oil and butane. Steam is used, when available throughout the year, for ovens

Chromium Plating

POINTS THE WAY

To lower Production and Maintenance Costs, to better Products

CHROMIUM plating is saving money for makers of metal products... by permitting use of the most suitable metals for fabrication purposes... by eliminating finishing difficulties... by providing a beautiful protective finish which stands up in service. It is being applied to copper, brass, cast-iron, steel, die-cast zinc, and other metals.

Manufacturers are also regularly chromium plating cutting tools... greatly increasing their life, reducing production costs. They are using this wear resisting finish on machinery parts ranging from cams to lathe beds... cutting down "time out" for equipment, lowering maintenance expense. With chromium plating they are salvaging worn and undersized parts... ordinarily junked.

Let chromium plating point the way for you to lower production and maintenance costs... to better products. We invite your inquiry and an opportunity to tell you about the United Chromium Licensing Arrangement.

★

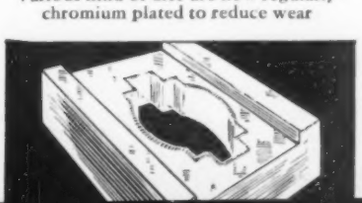
United Chromium

INCORPORATED

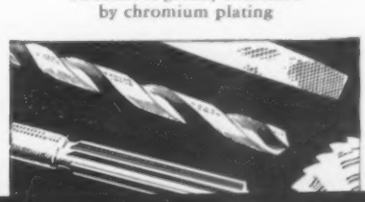
Executive Offices: 51 East 42nd St., New York City · *Detroit* · *San Francisco* · *Waterbury*

Chromium plating water pump shafts prevents galling, eliminates corrosion

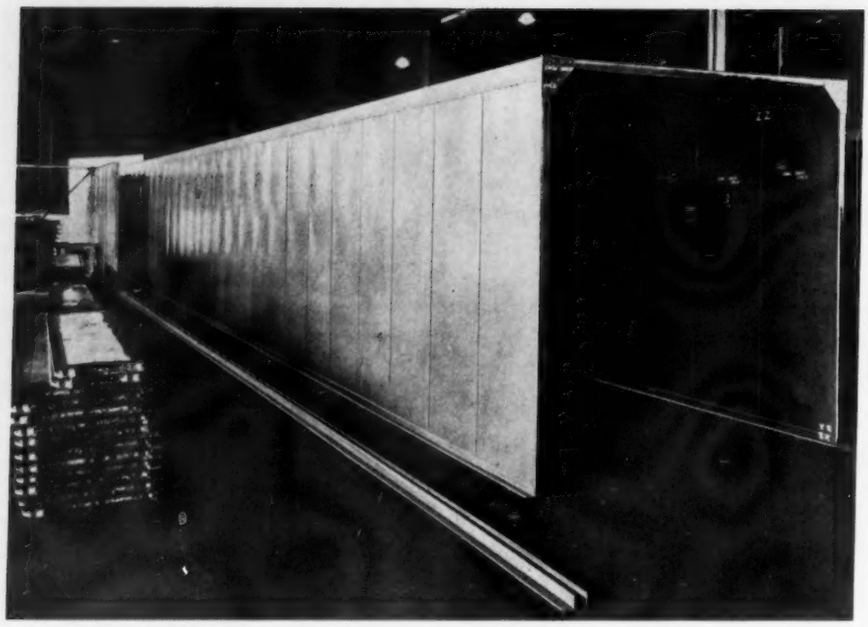
Various kind of dies are now regularly chromium plated to reduce wear



Tool life is greatly increased by chromium plating



Chromium plate gives metal products greater eye-appeal and durability



Partially assembled tunnel unit showing simplicity of construction of panel-type ovens. Note insulating material in panels stacked on left

which operate within its temperature range, the range depending upon the steam pressure available. For ovens operating at temperatures over 250 degrees Fahr., gas, oil or electricity generally are used. Often, too little attention is devoted to an exact analysis of fuel costs and although the oven may operate with maximum efficiency for the fuel used, the cost per B.t.u. may be higher than would be the case with some other fuel. There have been cases where liquid or gaseous fuels were not considered, even though the plant was located near an oil field, because it was feared that temperature control would not be accurate enough, and a more costly source of heat was utilized. This was, of course, an isolated case and is cited only to bring out the fact that temperature control suitable for commercial purposes can be maintained in properly designed ovens regardless of the type of fuel used.

In ceramic plants and others of a like nature, waste heat is often available in large quantities. The recovery and use of this heat in baking or drying ovens is often a good investment. Another problem which must be borne in mind is that ventilation difficulties occasionally arise with some oven installations.

Four Methods of Heating

The methods of applying heat may be divided into the following classifications: Radiation, conduction, natural convection, and forced convection. A graphic representation of the methods of heat transfer is shown in the accompanying sketches. Heating by radiation, usually accomplished by means of steam pipes, electric elements or radiating gas tubes, is seldom used because of the resultant lack of uniformity in oven temperature. Parts directly in the path of radiant heat are overbaked, and others underbaked.

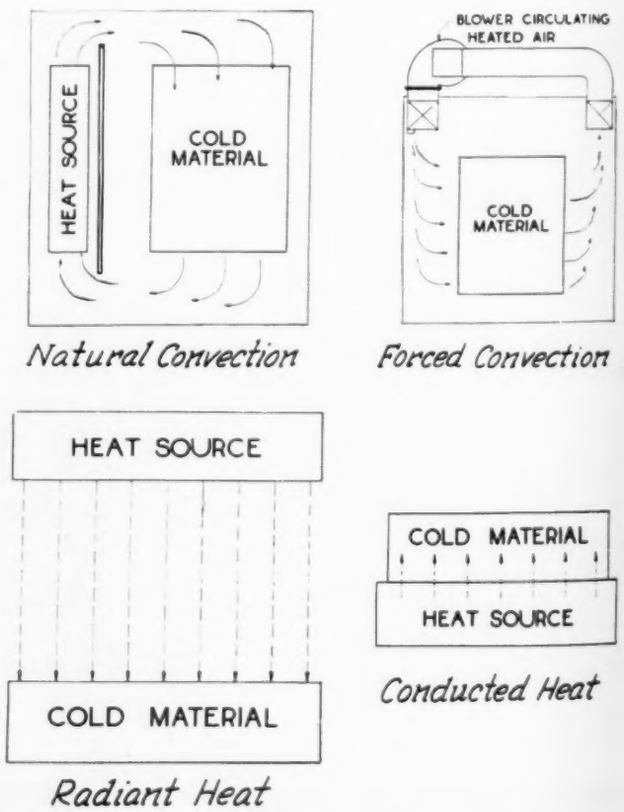
Conducted heat is applied by actual contact with the heat source, as by drying on a hot plate or roll. This method is used only in special cases and need not be considered here.

Natural convection is the circulation of air in a dryer or oven due to temperature difference. The rate of circulation is low and not always dependable. The very condition which causes the flow, temperature difference, is undesirable in an oven, which leaves only the alternative of forced convection.

Forced convection is the transfer of heat by means of mechanically circulated heated air in the oven. It has been found a most satisfactory method of heating commercial ovens because it has proved itself in the production of even temperatures, uniform baking and shorter baking, curing or drying time. This is true because the work is heated by the circulating air, and since the circulation is rapid, the air temperature is uniform throughout the oven and all parts of the work are affected equally. Also, due to the motion of air over the surface of the material, a more rapid transfer of heat takes place and consequently a more rapid evaporation of moisture or volatile solvents.

Many Factors Affect Design

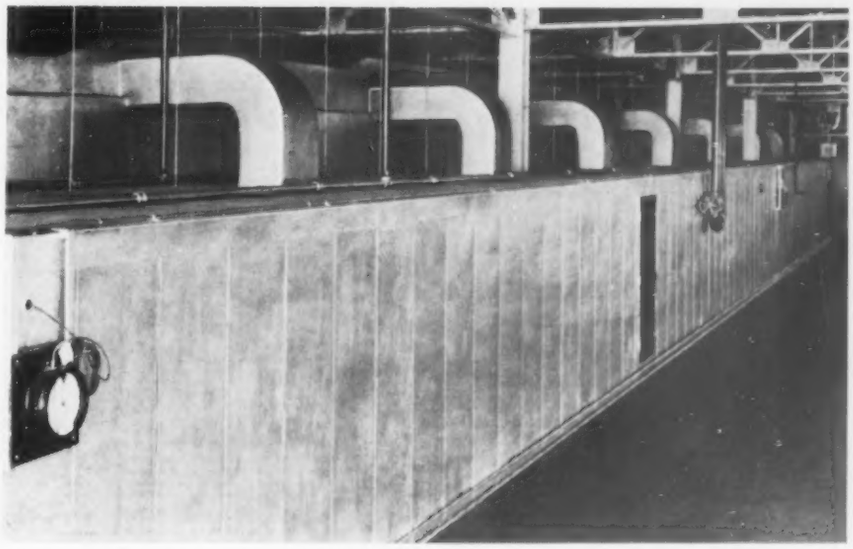
Forced convection alone will not give economical results. Proper consideration must be given to duct design, air velocities, distribution, stream lining, turbulence, eddy currents, induced flow and many other factors which enter into the design of an efficient oven. For instance, even on a small batch-type single truck oven, several methods of cir-



Illustrating the four conventional methods of heat transfer. Forced convection, upper right, is most commonly used in production ovens

culating the air may be used, the selection depending upon the material itself, the method of loading, spacing and clear areas, dusting and other factors.

Where groups of batch ovens are desired, it is often possible to heat them from a single source of high temperature air, and yet control each oven independently to its own time-temperature cycle. In continuous ovens it is often desirable to maintain a predetermined temperature curve throughout the oven, to process a material properly. This is accomplished by zoning, each zone being controlled independently and automatically. In some tunnel ovens, counterflow between the work and air is most economical since the exhaust is taken from the coolest part of the oven, while other cases require different methods.



Regularly spaced ducts shown at the top of this oven are the result of a careful engineering study of the production schedule in which it serves

Two Types of Air Heaters

The source of heated air, as previously stated, may be steam, using extended surface heaters for the lower temperature range; electricity, using resistance strips placed in the air circulating system; or fuel fired air heaters. The latter may use oil, butane or gas, and may be divided into two general classifications, direct and indirect heaters.

The direct type is used where the products of combustion may be circulated without harming the materials handled. This method is inexpensive and is susceptible to accurate thermostatic control. Where only clean fresh air is to be circulated, the indirect type of heater is used. This type of heater has been almost universally accepted by the automobile industry and other metal finishing plants for the baking of paints and enamels. It is also used in the baking of food products, drying of chemicals and other materials where an economical source of high-temperature clean air is required.

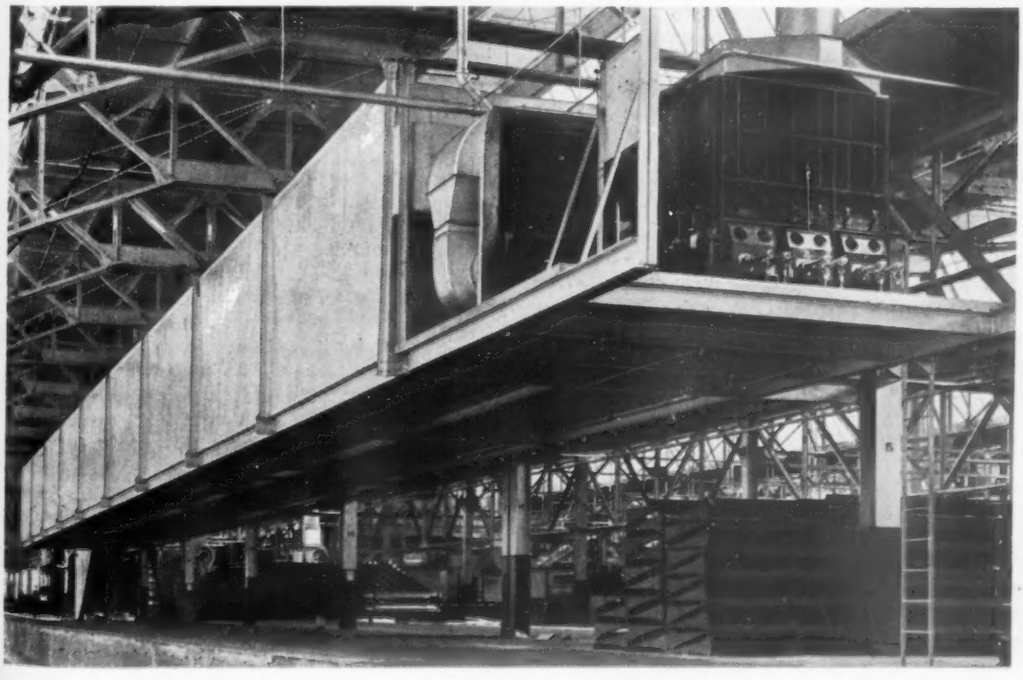
In cases where waste heat is to be utilized, special conditions exist which must be solved individually by a heating engineer.

Materials Handling a Factor

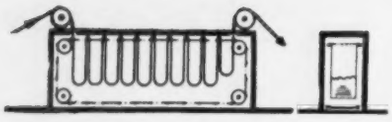
The type of oven to be used in any plant is, of course, influenced largely by the type of materials to be handled and the conditions of production. On the other hand the method of material handling in an oven is influenced not only by the material itself, but also by the place of the oven in the plant production schedule, or the processing of the material before and after the oven cycle.

There are numerous methods of handling materials in commercial ovens. The most common are illustrated in the accompanying sketches. For instance, for a continuous web material being coated on one side, a straight pass or festoon dryer could be used, while for a two side coating, a tower dryer or horizontal festoon might be used. If a continuous web needed only temperature curing, the entire bundle might be placed on trucks for batch drying.

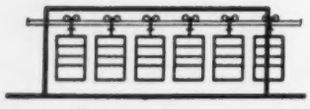
Similarly, a granular material



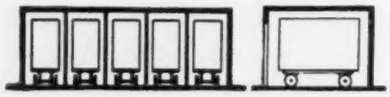
FLOOR space requirements sometimes make overhead suspension of ovens desirable



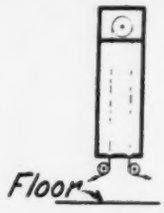
Festoon Dryer



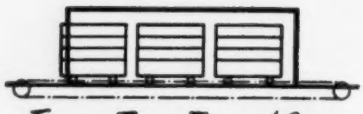
Truck Type Tunnel Oven with Overhead Monorail Conveyor



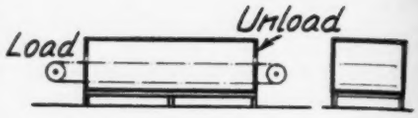
Multiple Batch Oven



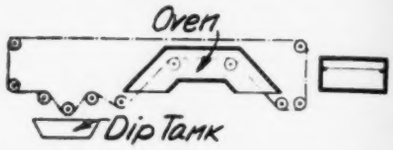
Tower Dryer



Truck Type Tunnel Oven with Floor Conveyor



Straight Pass Conveyor Dryer



Cross Bar Conveyor and Inclined Entry Oven for Enameling

Production methods and materials handling play an important part in oven design. Conventional methods of conveying and heating are illustrated here

might be placed on trays mounted on trucks for batch drying, or trays mounted on trucks, which in turn might be conveyed through a dryer by means of an overhead monorail or floor pusher conveyor. The material might also be placed on a continuous belt making one or more passes through a dryer.

The same reasoning applies to metal parts which may be conveyed through a dip tank and oven, or hand dipped and placed on a conveyor or truck. It might also be sprayed and placed on a cross bar conveyor, monorail conveyor or floor pusher conveyor.

Plant Size a Factor

The method of handling depends not only on the physical characteristics of the material but also on the conditions to be maintained in the oven and the volume of work being handled. A small volume of work does not justify a conveyor system, and large volumes, requiring special time-temperature cycles, can often be more economically handled in batteries of batch or truck type ovens. Physical conditions within the plant itself, or space limitations, will often be a determining factor in conveyor design. For example, where sufficient headroom is available, a long dryer or oven suspended from the ceiling or roof may be used, thereby occupying no floor space. In another case where length is not available, a multipass conveyor might be desirable in order to obtain sufficient travel within a short oven.

The method of applying the heat may in turn affect the conveyor design. Requirements of counterflow or parallel flow and free area between parts and other air handling problems will often dictate the particular type necessary.

Thus it is brought out that the factors entering the material handling phase alone are sufficiently involved to insure that no particular type of oven can be adapted to any wide use. Each production problem should be investigated thoroughly from every angle and recommendations made to suit, by heating engineers sufficiently grounded in their work through past experience with similar problems.

Porcelain Enamel Forums Attract Good Attendance

More than 100 attended the two forums for porcelain enamelers conducted recently by the Ferro Enamel Corp. at its plant in Cleveland. The first kitchenware forum was held July 16-17 and the tenth annual general forum was held July 23-25. R. A. Weaver, president of the company, addressed each group.

Both programs were in charge of J. E. Hansen, service director of the company and author of the textbook *Advanced Technique of Porcelain Enameling.* Mr. Hanson was assisted by the following members of the Ferro staff: M. J. Bahnsen, R. E. Bevis, P. E. Gerdes, I. B. Hart, Charles Moghabghab, F. S. Markert, G. H. McIntyre, R. B. Shoall and J. A. Thompson. Outside lectures were presented by prominent members of the porcelain enameling industry.

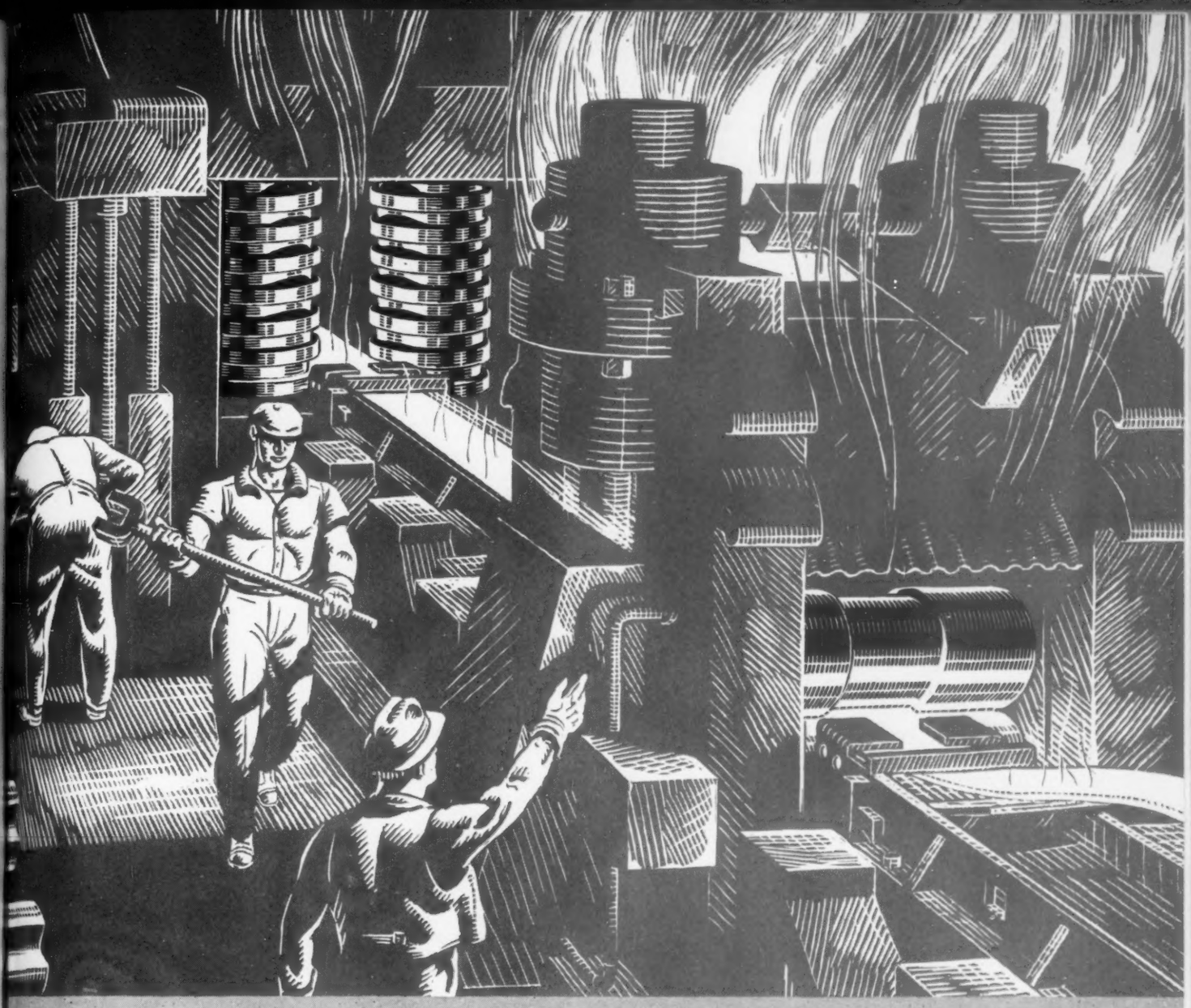
The kitchenware forum covered special problems of enamelers in this field, also a general review of enameling processes with special emphasis on the newest and most efficient practices and a roundtable on enameling troubles. George Foehse, enamel superintendent, National Enameling & Stamping Co., Granite City, Ill., contributed a paper on "Beading—Wet and Dry."

Outside speakers at the general forum included E. C. Aydelott, Benjamin Electric & Mfg. Co., Desplaines, Ill.; E. L. Lasier, vice president, Titanium Alloy Mfg. Co., Niagara Falls, N. Y., and Robert Calton, vice president, Tennessee Enamel Mfg. Co., Nashville, Tenn. Mr. Aydelott spoke on "Milling and Mill Room Control" and "Dipping and Dipping Control," and Mr. Calton on "Costs." Mr. Lasier discussed the work of the educational bureau of the Porcelain Enamel institute which he heads.

Sessions were held in a large, air-cooled tent pitched adjacent to the factory. This tent was said to be the first of its kind in the country.

Refractories Institute Appoints Editor of Text

American Refractories institute, Oliver building, Pittsburgh, has announced the appointment of Professor A. F. Greaves-Walker as editor-in-chief of a new manual of refractories to be prepared and published under the direction of the Institute. The title of the book will be *Refractories: Their Manufacture, Properties, and Uses.* The text will cover in detail the history of the industry; raw materials used; mining and manufacturing practice; properties, testing, and specification of refractories; their application to various industries; and general information among its subjects. A section of data tables will be included. It is planned to have the book ready for publication in 1938.



PHOENIX ROLLS IN SERVICE

Phoenix Rolls are appreciated by all rolling mill men, who, like other good workmen, do better work with fine tools.

PHOENIX ROLLS

PHOENIX STEEL, for unusual strength; PHOENIX "A" (steel alloy), for strength and wear; PHOENIX METAL—PHOENIX "K", for strength, wear and finish; PHOENIXLOY (uniformly hard), for flat rolling where high finish of extremely thin gauge of material is required to be free from all marks or defects. PHOENIX CHILL; PHOENIX NICKEL CHILL; for all flat rolling requiring finish. Also tube mill rolls of quality material best suited to the kind of service required.

PITTSBURGH ROLLS CORPORATION

PITTSBURGH, PA.

Procedure for Proper Maintenance of Industrial Dust Control Systems

BY C. A. SNYDER

Dust Control Engineer, American Foundry Equipment Co., Mishawaka, Ind.

DUST control systems have, in the past, been subject to an unusual amount of neglect and disregard after installation. Possibly most of this is due to the fact that the installation in itself is nonproductive, its chief function in most cases being the abatement of a nuisance. Many times also, the responsibility of upkeep has been shouldered onto an already overburdened millwright who, to keep actual production machinery in operation, has had to neglect the dust control installation.

Many times upon being questioned as to the performance of such equipment, a superintendent will say: "It's working fine, we haven't looked into it for several years." This is an altogether incorrect attitude, since usually when the equipment is opened the entire inner structure appears engulfed by sand.

Records Should Be Kept

Responsibility for operation and maintenance of dust control equipment should be placed in the hands of a competent mechanic, who should make observations as pointed out below, either monthly or semimonthly, and make dated reports in duplicate, with one copy for the plant manager, the other for his own records. The neglect of a seemingly unimportant and in itself inexpensive repair, may cause excessive damage to the installation and require a lengthy shutdown, not considering the loss of efficiency of the equipment during that time.

The following precautions are suggested:

1. Inspect all hoods and piping for wear, structural damage, leaks, settlement of dust and similar defects. Note that slides fit tightly. Check blast gates for position and wear, inspect pipe supporting members.

2. Check pipe connections to collector housing for leaks, also collector housing itself.

3. Watch fan bearings for wear and lubrication. Check for dust accumulation in fan housing or wear on fan wheel.

4. Enter clean air side of collector and with flashlight or extension light, check tube plates for excess dust accumulation. Check lubrication of shaking device. About every two months enter the dusty side of the collector, check the wear on baffle plates and other parts, and note condition of tubes from inside.

5. Check suction and volume readings with pitot tube and manometer. Compare these readings with original test readings at time of installation. A test of collecting efficiency should be made semiyearly by a competent individual using recognized technique in dust counting. Possibly your insurance connection includes this service.

6. By watching a permanent manometer connected across the dust collector, the proper time for shutting off shaking device can be determined. Hoppers should be emptied daily.

Air Speeds To Move Various Substances Through Ducts

Material	Air velocities (feet per minute)
Grain dust	2000
Wood chips and shavings	3000
Saw dust	2000
Jute dust	2000
Rubber dust	2000
Lint	1500
Metal dust (grindings)	2200
Lead dusts	5000
Brass turnings (fine)	4000
Fine coal	4000

Welding Society Lists Papers for Metal Congress

(*Concluded from Page* 49)

search Laboratories, Kearny, N. J.

"Multi-layer Oxyacetylene Pipe Welding," by R. M. Rooke, F. C. Saake and A. N. Kugler, Air Reduction Sales Co., New York.

High-speed motion pictures of various welding processes, by E. Vom Steeg, General Electric Co., Schenectady, N. Y., and Walter Richter, A. O. Smith Corp., Milwaukee.

EVENING

Dinner meeting, board of directors.

Tuesday, Oct. 20

MORNING

Fundamental Research in Welding

"Heating by the Proximity Effect," by Edward Bennett, University of Wisconsin, Madison, Wis.

"Welding of Copper," by A. P. Young, Michigan College of Mining and Technology, Houghton, Mich.

"Nondestructive Testing of Welds," by W. B. Kouwenhoven, Johns Hopkins university, Baltimore.

"Impact Tests of Welds at Low Temperatures," by Otto Henry, Brooklyn Polytechnic institute, Brooklyn, N. Y.

AFTERNOON

Fundamental Research in Welding

"X-Ray Methods for Studying Stress Relief," by John T. Norton, Massachusetlts Institute of Technology, Cambridge, Mass.

"Welded Beam-Column Connections," by Inge Lyse, Lehigh university, Bethlehem, Pa.

"Circuit Characteristics and Arc Stability," by S. C. Osborne, Wilson Welder & Metals Co. Inc., North Bergen, N. J.

"Welded Structural Brackets," by C. D. Jensen, Lehigh university, Bethlehem, Pa.

EVENING

Conference and meeting of fundamental research committee, Bureau of Welding Research and Engineering Foundation. Scheduled for benefit of university research workers in fundamentals of welding.

Wednesday, Oct. 21

MORNING

"Brazing with Silver Solders," by Robert H. Leach, Handy & Harman, New York.

"Importance of Design Control for Welded Piping Systems," by T. W. Greene, Linde Air Products Co., New York.

"Principles of Surfacing by Welding," by E. W. P. Smith, Lincoln Electric Co., Cleveland.

"Technique for Resistance Welding Ferrous and Nonferrous Sheet Metals," by E. I. Larsen, P. R. Mallory Co., Indianapolis.

AFTERNOON

"Procedures for Control of Welding Parts," by G. H. Moore Jr., Newport News Shipbuilding & Dry Dock Co., Newport News, Va.

"Welding Copper and Its Alloys—A Review of the Literature," by Ira T. Hook, American Brass Co., Ansonia, Conn.

"Resistance Welding of Dissimilar Metals," by R. T. Gillette, General Electric Co., Schenectady, N. Y.

"Thermit Welding," by J. H. Deppeler, Metal & Thermit Corp., New York.

"Exploration of the Modern Metallic Arc," by L. J. Larson, A. O. Smith Corp., Milwaukee.

EVENING

Stag entertainment.

Thursday, Oct. 22

MORNING

Joint Session with American Society of Mechanical Engineers

"Stress Analysis," by C. H. Jennings, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

"Alloy Steels and Their Weldability," by A. B. Kinzel, Union Carbide & Carbon Research Laboratories Inc., Long Island City, N. J.

AFTERNOON

Joint Session with American Society of Mechanical Engineers

"Welding Heavy Machinery and Equipment," by C. A. Wills and F. L. Lindemuth, William B. Pollack Co., Youngstown, O.

"Steel Plate Construction."

"Using Steel Plates for Machine Frames."

EVENING

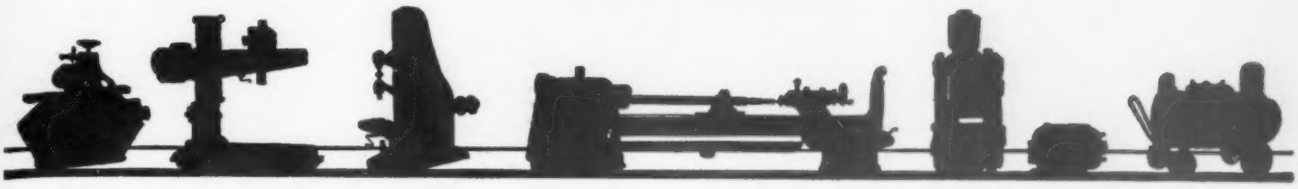
Dinner and dance.

Friday, Oct. 23

MORNING AND AFTERNOON

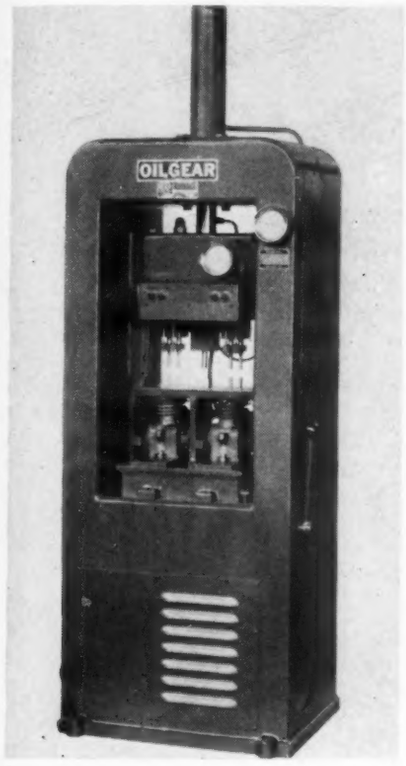
Members of American Welding Society invited to participate in sessions of American Society of Mechanical Engineers. Subjects to be discussed: Weldability of nonferrous metals—copper, brass and bronze, monel metal, aluminum; review of welding developments as they affect mechanical design; welding of light machines and products; principles involved in selecting casting versus welding.

New Equipment



Two-Column Press—

Oilgear Co., 1403 West Bruce street, Milwaukee, announces a new 5-ton two-column Pushemall press



Oilgear two column 5-ton Pushemall press

for accurate assembly of plain valve guide bushings to a predetermined depth and at a known press fit. For each press stroke, four plain solid valve guide bushings are pressed into two air cooled single acting type gasoline engine cylinders. Built into the fixture attached to the crosshead is an automatic tell-tale which flashes a red light when the press fit for any bushing is not in accordance with predetermined specifications. The press frame is of all steel welded construction and encloses the pump, electric motor, valve, control mechanism and piping. A hat-type cylinder is flanged to the top of the frame and the maximum pressure in the system is recorded to the gage attached to the press frame. The maximum capacity is 13,000 pounds and normal load is 10,000 pounds. Maximum stroke is 12 inches and daylight space is 18 inches. Overall height is 94 inches and floor space occupied is 35 x 25 inches.

• • •

Inclinable Press—

Cleveland Punch & Shear Works Co., Cleveland, has designed a new inclinable press having an all steel welded frame, stress relieved after welding, designed with box section housings to insure rigidity and reduce "weaving" to a minimum. The press, which is of single geared type arranged for direct connected motor drive, has a capacity of approximately 115 tons, a bed area of 29 inches front to back and 40 inches left to right and operates with a speed of 40 strokes per minute. It is equipped with a block type clutch and has an extra large brake provided with a safety drop bar. The driveshaft is mounted with roller bearings and the slide, which has extra long bearing surfaces, is provided with a new style two piece connection. This type construction may also be used for inclinable presses of medium size.

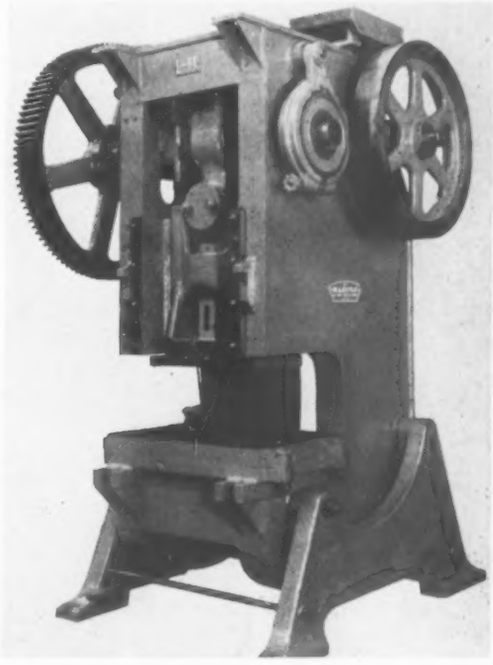
• • •

Spindle Nose—

Reed-Prentice Corp., Worcester, Mass., has recently announced a new standard lathe spindle nose for its 14 and 16-inch model AA sliding gear head engine and model B toolroom lathes. This newly designed

Standard lathe spindle nose now available on Reed-Prentice engine and tool room lathes

nose permits more ready and accurate placement of chucks and face plates, according to the company. Construction includes a long hardened taper bearing for alignment and a safety key for holding. The



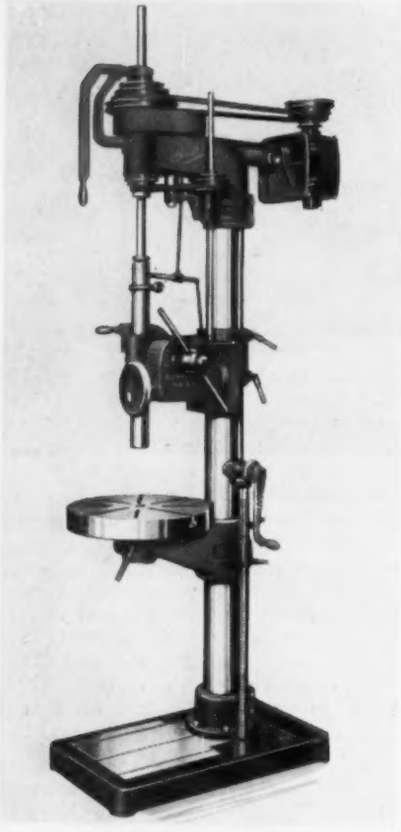
Inclinable press No. 11 built by the Cleveland Punch and Shear Works Co.

key permits plates or chucks to be hung on the spindle thus allowing the operator both hands to start and tighten the collar. The key also brings the thread in the collar into immediate alignment with that on the chuck or face plate readily and without difficulty. To take off or put on a face plate or chuck requires only 12 to 15 seconds, it is claimed.

• • •

Drill—

Buffalo Forge Co., Buffalo, N. Y., has recently placed on the market a



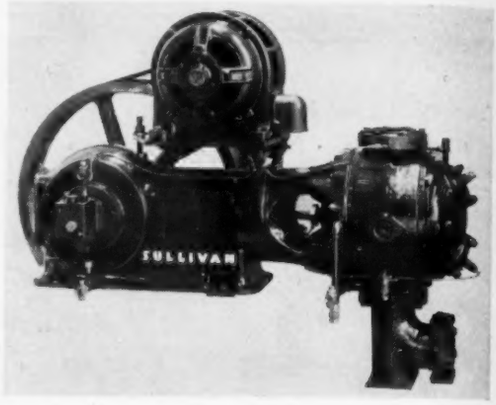
Production drill recently placed on the market by the Buffalo Forge Co.

series of drills for operation at speeds ranging from 65 to 1350 revolutions per minute. Drive is from a vertical motor through V-belt with a 4-speed pulley. A 6 to 1 ratio back gearing is provided, making eight speeds in all. The spindle is high-carbon steel, heat treated and ground, running in bronze bushings. The sliding head is a single rigid casting, in which is enclosed the silent, constant mesh feed gearing which runs in a bath of oil. The feed is automatically released at the proper depth, or may be set for manual operation. Clutches are positive multiple-tooth type, guarded by a shear pin. The rated capacity is up to 1¼ inches in steel, or up to 2 inches in cast iron or non-ferrous metals. Bearings are anti-friction throughout and all gears run in oil baths. Bases are provided with coolant tanks and tables are built with coolant troughs integral.

• • •

Stationary Compressor—

Sullivan Machinery Co., Michigan City, Ind., announces a new stationary compressor for heavy-duty air



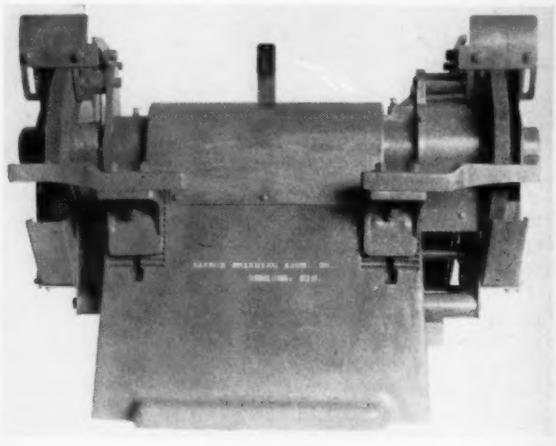
Sullivan stationary heavy duty air and gas compressor

and gas compression work. It is of the single stage, single cylinder double acting horizontal type, and is built in sizes of 10 to 50 horsepower, for operation under pressures from 5 to 150 pounds. Features stressed in this new unit are double-row main bearings, replaceable cylinder liner, and crosshead guide, tinned piston and crosshead and streamline long-life valves. The new model is available for any type of drive, the recommended setup being an overhead drive as illustrated here. Constant speed control is standard and consists of pilot valve and sweep control to load or unload compressor according to the demand for air while the motor runs continuously. Where air demand is intermittent, automatic stop and start dual control is recommended. Under this type of control, a switch provides changeover from intermittent to constant operation.

• • •

Grinding Machine—

Ransom Grinding Machine Co., Oshkosh, Wis., is bringing out a new grinding machine built for operation of 24 and 30-inch high speed wheels for foundry grinding. Four changes of speed are accomplished by changing the sheaves on the motor. The drive from the motor to the spindle is by V-belts which run from large sheaves on the spindle placed outside the end bearing so the drives may be installed without disturbing the arbor. The speed is controlled in order to eliminate overspeeding of the wheels. A 15-horsepower motor is bolted to the back of the machine, intended for alternating-current operation at a speed of 1800 revolutions per minute. The machine is equipped for operating wheels with 12-inch hole and weighs 3850 pounds with 24-inch wheel and 3900 pounds with 30-inch wheel.

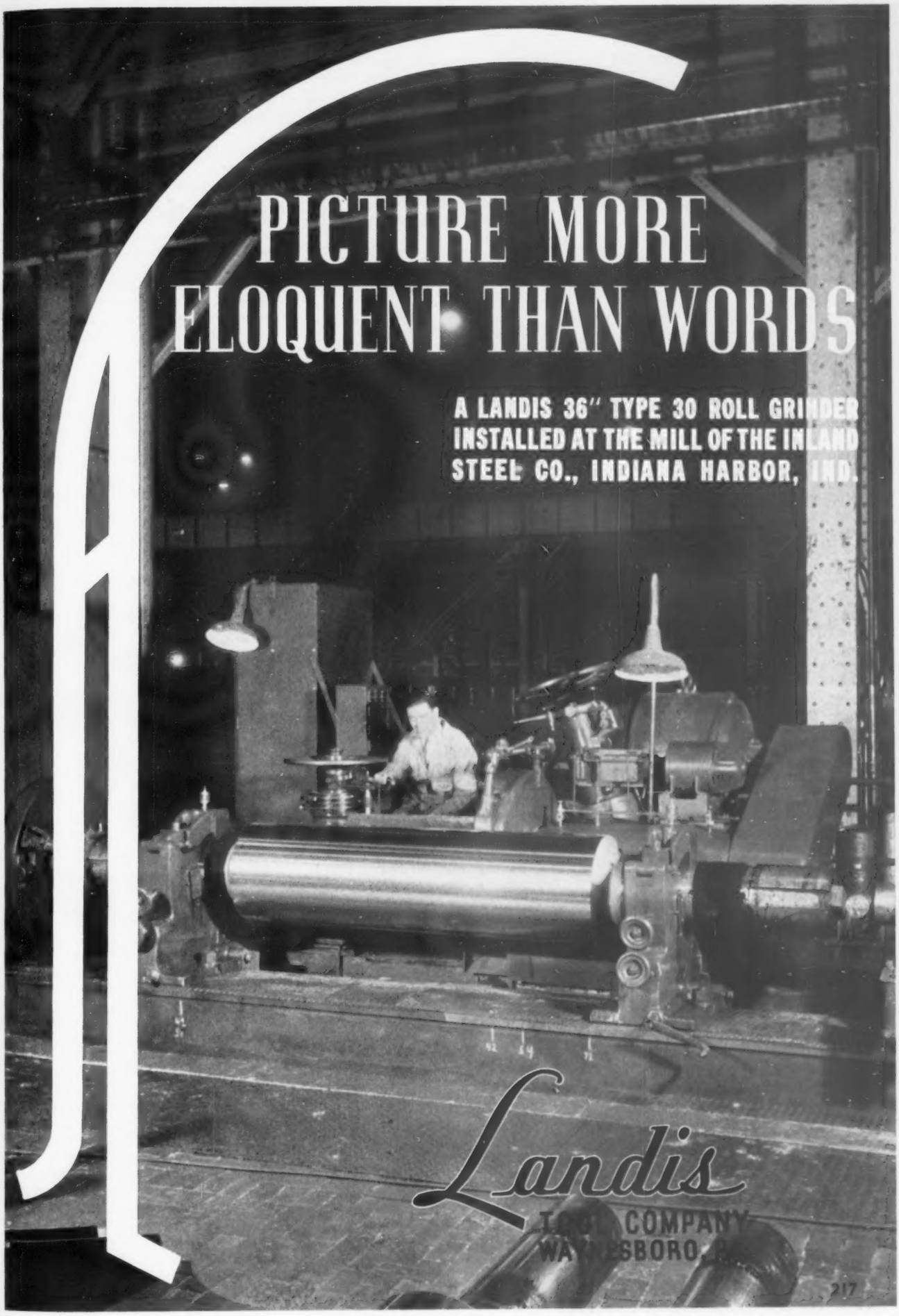


Ransom type C high speed grinding machine for 24 or 30-inch wheels

• • •

Bearing Oiler—

Trico Fuse Mfg. Co., 2948 North Fifth street, Milwaukee, announces a new feed control feature in its line of oilers for solid, wick and waste packed bearings, making it so flexible as to meet the requirements of bearings varying in size, speed and temperature. An adjustment makes it possible for the oiler to feed slow, medium or fast as the bearing may require and does away with the old-fashioned hand oiling method. The


PICTURE MORE
ELOQUENT THAN WORDS
A LANDIS 36" TYPE 30 ROLL GRINDER
INSTALLED AT THE MILL OF THE INLAND
STEEL CO., INDIANA HARBOR, IND.
Landis
TOOL COMPANY

unit has been designed to fit many installations without drilling or tapping, and it is furnished in three sizes. A new data sheet is included

Trico bottle type bearing oiler with adjustable feed

in each package giving information on various types of installations and methods of cutting lubrication costs.

♦ ♦ ♦

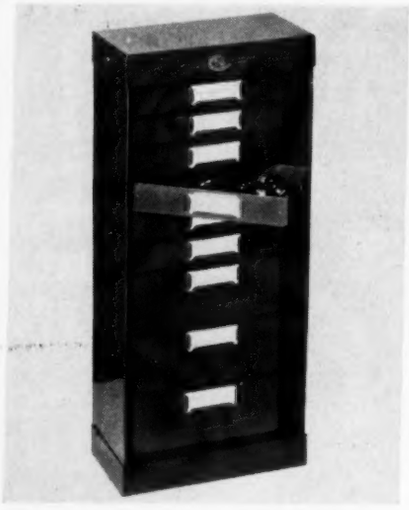
Milling Machine—

Pratt & Whitney division, Niles-Bement-Pond Co., Hartford, Conn., announces a new high speed miller and profiler called No. 12B. The machine is available with either one or two spindles, and can be applied either as a single purpose or a general purpose machine according to the spindle speeds desired and the work to be done. As a general purpose machine, the spindles are driven individually by four speed motors with motor and spindle pulleys interchangeable. Eight speeds ranging from 300 to 3600 revolutions are produced. As a single purpose machine, constant-speed individual motors are used with step pulleys, providing four spindle speeds. All motors are single-horsepower alternating-current type. The spindle slides are traversed vertically by large levers convenient to the operator. The cross slides are provided with weight compensating rolls which make the feed sensitive and easy to operate, it is claimed. Positive vertical adjustable stops are provided, each having a dial graduated in thousandths. A horizontal lever in front of each spindle locks the slide in any desired position.

♦ ♦ ♦

Utility Cabinet—

Yawman & Erbe Mfg. Co., Rochester, N. Y., has recently designed a new non-spill utility cabinet to meet industrial storage requirements for small parts. Made entirely of steel, the cabinets are finished in baked olive green enamel. Each drawer is equipped with a label holder. A unique feature is that the drawers swing on a pivot so they are permanently attached to the cabinet. The cabinet illustrated is a single unit, outside dimensions 6½ x 14½ x 3½ inches, having nine drawers, six 1-inch drawers above and three 2-inch drawers below. Other combinations are available for storing parts up to 5 inches in length.



Non-spill utility tray for storing small parts, available in many designs from the Yawman & Erbe Mfg. Co.

♦ ♦ ♦

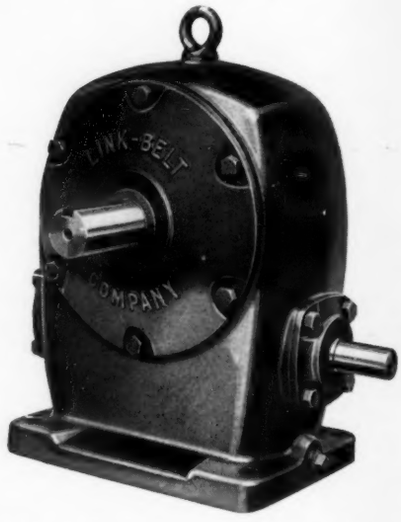
Microscope—

Bausch & Lomb Optical Co., Rochester, N. Y., has recently placed on the market the new KW wide field binocular microscope series consisting of three models. Features of this new line of industrial microscopes are extremely wide field, long working distance, high eyepoint eyepieces, stereoscopic vision, erect and unreversed images and parfocal objectives on the drum nosepiece, for quick change of magnifications. A longer arm has been fitted to the new models to facilitate shifting the objectives without interfering with operation, and large size bakelite buttons are provided for easy and precise adjustment.

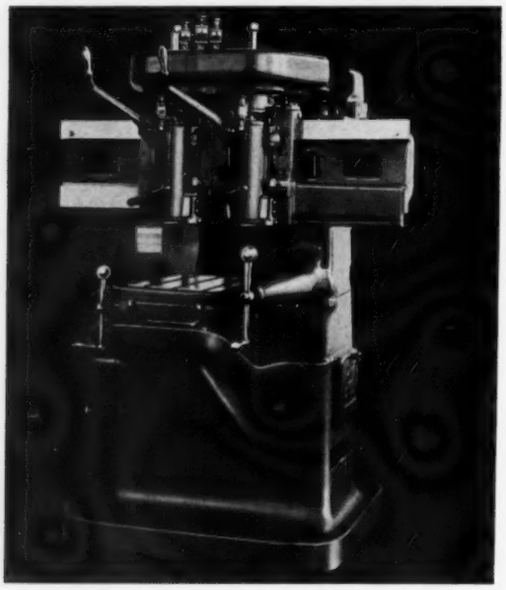
♦ ♦ ♦

Speed Reducer—

Link-Belt Co., Philadelphia, has recently developed a new line of worm gear speed reducers of compact and accessible construction which offers great flexibility of driving arrangement, it is asserted. The new models are available in a wide range of ratios and capacities with single or double reduction and in horizontal and vertical types. All are provided with precision tapered roller bearings and automatic lubrication within dustproof gray iron housings. The output shaft with chilled phosphor bronze worm wheel can be located above or below the worm shaft. A feature of the double reduction unit is the unitized attachment of the primary reduction unit to the side of the final reduction housing.



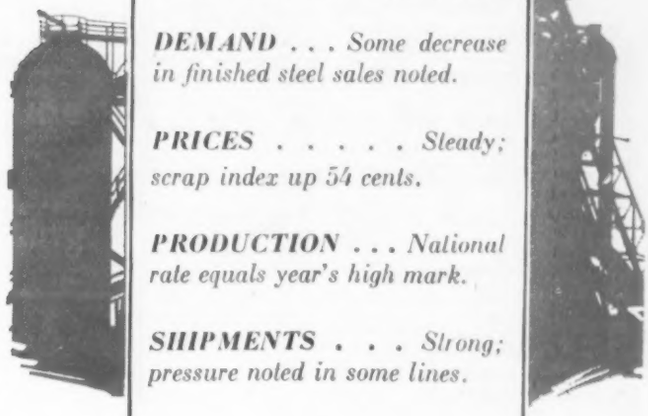
Link-Belt worm gear speed reducer which is of flexible design



Pratt & Whitney No. 12B high speed vertical profiler and miller for use as a single or general purpose machine

Operations Up 1 Point to 71½ as July Ends

Month's Average Rate Fractionally Below June; Scrap Prices Still Rising



MARKET IN TABLOID

DEMAND *. . . Some decrease in finished steel sales noted.*

PRICES *. . . . . Steady; scrap index up 54 cents.*

PRODUCTION *. . . National rate equals year's high mark.*

SHIPMENTS *. . . Strong; pressure noted in some lines.*

JULY ended with iron and steel markets still buoyant, the national steelworks operating rate at 71½ per cent, equal to the year's highest mark, and with prospects for activity in August improved.

Led by a 2-point increase in the Pittsburgh district, the national rate advanced 1 point over the previous week, putting the July operating average at approximately 69.3 per cent, only fractionally below the average June rate. The month was by far the best July since 1929, and considerably ahead of July, 1935, when the average rate was 39.44.

The Pittsburgh increase advanced operations there to 69 per cent. In the Chicago district operations were up 1 point to 71 per cent, while Wheeling showed a gain of 3 points to 92. Buffalo was down 3 to 81; Cleveland 3 to 82, and the other districts were unchanged.

Swiftly advancing prices of iron and steel scrap testify to the scarcity which has been apparent at mills for the last month. STEEL'S scrap composite is up 54 cents to $13.66, about midway between the levels for the first and second weeks in May. For five consecutive weeks this index has advanced steadily from $12.47, and indications point to a further upward movement.

Twelve leading producers of steel, representing 83 per cent of the country's total ingot capacity, have reported an aggregate profit of $41,281,010 for the first six months of 1936. This compares with $14,736,156 profit for the identical 12 in the first half of 1935. On the basis of steel ingot output alone indicated profits for the entire industry in the first half were $2.33 per ton, compared with $1.23 indicated for the first half last year.

New business showed a slight decline at some mills last week, but heavy backlogs provide an ample cushion for any falling off which is not too extensive at the present time. Prompted by a desire to get in ahead of fall activity, some consumers have ordered larger quantities.

Automobile production held almost even with the previous week, the 95,970 assembled units being a decline of only 893. Demand for steel for the 1937 models became more apparent, with Ford coming into the market for material for 157,000 units, mainly for 1937 models, and Chevrolet and other General Motors units following the same procedure. By Sept. 1 this type of buying will be more in evidence again.

With the award of 3500 tank cars by Union Tank Car Co. last week, the unofficial July average of domestic awards, 7279, exceeds the June average by 2059 cars. Monthly average for the first six months of this year was 4688 cars. In 1935, awards for the entire first half totaled only 6333.

The July 31 expiration of second quarter price protection on specific construction projects helped bolster the activity of structural and plate mills to a certain extent. Last week's shape awards totaled 28,282 tons, up about 10,000 from the previous week. There were no exceptionally large awards, but a good volume of 1000-ton jobs were placed. Reinforcing bar awards were down to 3862 tons

Average daily pig iron output in July, 83,404 gross tons, was 3147 tons lower than in June, a decrease of 3.6 per cent. The seven months' total this year, 16,165,539 gross tons, is a gain of 4,815,265 tons over the corresponding period last year, or 42.4 per cent. July output, 2,585,537 gross tons was 10,991 less than in June, a decrease of 0.42 per cent.

At the end of July 148 stacks were in operation, more than in any month since June, 1930, when 162 were active. The July figure was four greater than in June of this year.

Due to the increase in scrap prices, the iron and steel index is up 21 cents to $33.72. STEEL'S finished composite remains unchanged at $53.40.

COMPOSITE MARKET AVERAGES

	Aug. 1	July 25	July 18	One Month Ago July, 1936	Three Months Ago May, 1936	One Year Ago Aug., 1935	Five Years Ago Aug., 1931
Iron and Steel	$33.72	$33.51	$33.49	$33.49	$32.92	$32.68	$30.73
Finished Steel	53.40	53.40	53.40	53.40	52.20	54.02	48.72
Steelworks Scrap	13.66	13.12	12.91	12.89	13.40	12.05	8.79

Iron and Steel Composite:—Pig iron, scrap, billets, sheet bars, wire rods, tin plate, wire, sheets, plates, shapes, bars, black pipe, rails, alloy steel hot strip, and cast iron pipe at representative centers. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Heavy melting steel and compressed sheets.

A COMPARISON OF PRICES

Representative Market Figures for Current Week; Average for Last Month, Three Months and One Year Ago

	Aug. 1, 1936	July 1936	May 1936	Aug. 1935
Finished Material				
Steel bars, Pittsburgh	1.95c	1.95c	1.85c	1.80c
Steel bars, Chicago	2.00	2.00	1.90	1.85
Steel bars, Philadelphia	2.26	2.26	2.16	2.11
Iron bars, Terre Haute, Ind.	1.85	1.85	1.75	1.75
Shapes, Pittsburgh	1.90	1.90	1.80	1.80
Shapes, Philadelphia	2.11½	2.11½	2.01½	2.01½
Shapes, Chicago	1.95	1.95	1.85	1.85
Tank plates, Pittsburgh	1.90	1.90	1.80	1.80
Tank plates, Philadelphia	2.09	2.09	1.99	1.99
Tank plates, Chicago	1.95	1.95	1.85	1.85
Sheets, No. 10, hot rolled, Pitts.	1.95	1.95	1.85	1.85
Sheets, No. 24, hot ann., Pitts.	2.50	2.50	2.40	2.40
Sheets, No. 24, galv., Pitts.	3.20	3.20	3.10	3.10
Sheets, No. 10, hot rolled, Gary	2.05	2.05	1.95	1.95
Sheets, No. 24, hot anneal., Gary	2.60	2.60	2.50	2.50
Sheets, No. 24, galvan., Gary	3.30	3.30	3.20	3.20
Plain wire, Pittsburgh	2.40	2.40	2.40	2.30
Tin plate, per base box, Pitts.	5.25	5.25	5.25	5.25
Wire nails, Pitts.	2.10	2.10	2.10	2.55
Semifinished Material				
Sheet bars, open-hearth, Youngs.	$30.00	30.00	28.00	28.00
Sheet bars, open-hearth, Pitts.	30.00	30.00	28.00	28.00
Billets, open-hearth, Pittsburgh	30.00	30.00	28.00	27.00
Wire rods, Pittsburgh	38.00	38.00	40.00	38.00

	Aug. 1, 1936	July 1936	May 1936	Aug. 1935
Pig Iron				
Bessemer, del. Pittsburgh	$20.8132	20.81	20.81	19.81
Basic, Valley	19.00	19.00	19.00	18.00
Basic, eastern del. East. Pa.	20.8132	20.81	20.81	19.81
No. 2 fdy., del. Pittsburgh	20.3132	20.31	20.31	19.31
No. 2 fdy., Chicago	19.50	19.50	19.50	18.50
Southern No. 2, Birmingham	15.50	15.50	15.50	14.50
Southern No. 2, del. Cincinnati	20.2007	20.2007	20.2007	19.38
No. 2X eastern, del. Phila.	21.6882	21.68	20.81	20.68
Malleable, Valley	19.50	19.50	19.50	18.50
Malleable, Chicago	19.50	19.50	19.50	18.50
Lake Sup., charcoal, del. Chicago	25.2528	25.2528	25.2528	24.25
Ferromanganese, del. Pitts.	80.13	80.13	80.13	90.13
Gray forge, del. Pittsburgh	19.6741	19.67	19.67	18.67
Scrap				
Heavy melting steel, Pittsburgh	$15.00	14.15	14.75	13.25
Heavy melt. steel, No. 2, east. Pa.	11.75	11.50	11.71	10.50
Heavy melting steel, Chicago	13.75	13.25	13.05	12.35
Rail for rolling, Chicago	14.75	14.00	14.65	13.65
Railroad steel specialties, Chicago	15.75	14.75	14.65	13.55
Coke				
Connellsville, furnace, ovens	$3.30	3.45	3.50	3.25
Connellsville, foundry, ovens	4.25	4.25	4.25	4.00
Chicago, by-product foundry, del.	9.75	9.75	9.75	9.25

Steel, Iron, Raw Material, Fuel and Metals Prices

Except when otherwise designated, prices are base, f.o.b. cars. Asterisk denotes price change this week.

Sheet Steel

Prices Subject to Quantity Extras and Deductions (Except Galvanized)

Hot Rolled No. 10, 24-48 in.

Pittsburgh	1.95c
Gary	2.05c
Chicago, delivered	2.08c
Detroit, del.	2.15c
New York, del.	2.30c
Philadelphia, del.	2.26c
Birmingham	2.10c
St. Louis, del.	2.28c
Pacific ports, f.o.b. cars, dock	2.50c

Hot Rolled Annealed No. 24

Pittsburgh	2.50c
Gary	2.60c
Chicago, delivered	2.63c
Detroit, delivered	2.70c
New York, del.	2.85c
Philadelphia, del	2.81c
Birmingham	2.65c
St. Louis, del	2.82c
Pacific ports, f.o.b. cars, dock	3.15c

Galvanized No. 24

Pittsburgh	3.20c
Gary	3.30c
Chicago, delivered	3.33c
Philadelphia, del.	3.51c
New York, del.	3.55c
Birmingham	3.35c
St. Louis, del.	2.83c
Pacific ports, f.o.b. cars, dock	3.80c

Tin Mill Black No. 28

Pittsburgh	2.75c
Gary	2.85c
St. Louis, delivered	3.08c

Cold Rolled No. 10

Pittsburgh	2.60c
Gary	2.70c
Detroit, delivered	2.80c
Philadelphia, del.	2.91c
New York, del.	2.95c
Pacific ports, f.o.b. cars, dock	3.20c

Cold Rolled No. 20

Pittsburgh	3.05c
Gary	3.15c
Detroit, delivered	3.25c
Philadelphia, del.	3.36c
New York, del.	3.40c

Enameling Sheets

Pittsburgh, No. 10	2.45c
Pittsburgh, No. 20	3.05c
Gary, No. 10	2.55c
Gary, No. 20	3.15c

Tin and Terne Plate

Gary base, 10 cents higher.

Tin plate, coke base (box) Pittsburgh	$5.25
Do., waste-waste	2.75c
Do., strips	2.50c
Long ternes, No. 24 unassorted, Pitts.	3.50c
Do., Gary	3.60c

Corrosion and Heat-Resistant Alloys

Pittsburgh base, cents per lb.

Chrome-Nickel

	No. 302	No. 304
Bars	23.00	24.00
Plates	26.00	28.00
Sheets	33.00	35.00
Hot strip	20.75	22.75
Cold strip	27.00	29.00

Straight Chromes

	No. 410	No. 430	No. 442	No. 446
Bars	17.00	18.50	21.00	26.00
Plates	20.00	21.50	24.00	29.00
Sheets	25.00	28.00	31.00	35.00
Hot strip	15.75	16.75	21.75	26.75
Cold stp.	20.50	22.00	27.00	35.00

Steel Plate

Pittsburgh	1.90c
New York, del.	2.19c
Philadelphia, del.	2.09c
Boston, delivered	2.32c
Buffalo, delivered	2.15c
Chicago or Gary	1.95c
Cleveland, del.	2.09½c
Birmingham	2.05c
Coatesville, base	2.00c
Sparrows Pt., base	2.00c
Pacific ports, f.o.b. cars, dock	2.45c
St. Louis, delivered	2.18c

Structural Shapes

Pittsburgh	1.90c
Philadelphia, del.	2.11½c
New York, del.	2.16½c
Boston, delivered	2.30½c
Bethlehem	2.00c
Chicago	1.95c
Cleveland, del	2.10c
Buffalo	2.00c
Gulf Ports	2.30c
Birmingham	2.05c
Pacific ports, f.o.b. cars, dock	2.45c

Bars

Soft Steel

(Base, 3 to 25 tons)

Pittsburgh	1.95c
Chicago or Gary	2.00c
Duluth	2.10c
Birmingham	2.10c
Cleveland	2.00c
Buffalo	2.05c
Detroit, delivered	2.10c
Pacific ports, f.o.b. cars, dock	2.50c
Philadelphia, del.	2.26c
Boston, delivered	2.37c
New York, del	2.30c
Pitts., forg. qual.	2.20c

Rail Steel

To Manufacturing Trade

Pittsburgh	1.80c
Chicago or Gary	1.85c
Moline, Ill.	1.85c
Cleveland	1.85c
Buffalo	1.90c

Iron

Terre Haute, Ind...	1.85c
Chicago	1.90c
Philadelphia	2.16c
Pittsburgh, refined..	2.75-7.50c

Reinforcing

New billet, straight lengths, quoted by distributors.

Pittsburgh	2.05c
Chicago, Gary, Buffalo, Cleve., Birm., Young...	2.10c
Gulf ports	2.45c
Pacific coast ports f.o.b. car docks	2.45c
Philadelphia, del.....	2.26c-2.36c

Rail steel, straight lengths, quoted by distributors

Pittsburgh	1.90c
Chicago, Buffalo, Cleveland, Birm., Young.....	1.95c
Gulf ports	2.30c

Wire Products

(Prices apply to straight or mixed carloads; less carloads $4 higher; less carloads fencing $5 over base column.)

Base Pitts.-Cleve. 100 lb. keg.	
Stand. wire nails....	2.10c
Cement c't'd nails....	2.10c
Galv. nails, 15 gage and finer	4.10c
do. finer than 15 ga.	4.60c

(Per pound)

Polished staples.....	2.80c
Galv. fence staples	3.05c
Barbed wire, galv...	2.60c
Annealed fence wire	2.65c
Galv. fence wire.....	3.00c
Woven wire fencing (base column, c.l.)	$58.00

To Manufacturing Trade

Plain wire, 6-9 ga..	2.40c

Anderson, Ind. (merchant products only) and Chicago up $1; Duluth up $2; Birmingham up $3.

Spring wire, Pitts. or Cleveland	3.05c

Do., Chicago up $1, Worc. $2.

Cold-Finished Carbon Bars and Shafting

Base, Pitts., one size, shape, grade, shipment at one time to one destination

10,000 to 19,999 lbs.	2.25c
20,000 to 59,999 lbs.	2.20c
60,000 to 99,999 lbs.....	2.15c

Gary, Ind., Cleve., Chi., up 5c; 100,000 lbs. and over.....2.12½c

Buffalo, up 10c; Detroit, up 15c; eastern Michigan, up 20c.

Alloy Steel Bars (Hot)

(*Base, 3 to 25 tons.*)

Pittsburgh, Buffalo, Chicago, Massillon, Canton, Bethlehem 2.55c

Alloy S.A.E.	Diff.	Alloy S.A.E.	Diff.
2000	0.25	3100	0.55
2100	0.55	3200	1.35
2300	1.50	3300	3.80
2500	2.25	3400	3.20

4100 0.15 to 0.25 Mo.	0.50
4600 0.20 to 0.30 Mo. 1.25-1.75 Ni.	1.05
5100 0.80-1.10 Cr.	0.45
5100 Cr. spring	base
6100 bars	1.20
6100 spring	0.70
Cr., Ni., Van.	1.50
Carbon Van.	0.95
9200 spring flats	base
9200 spring rounds, squares	0.25

Piling

Pittsburgh	2.25c
Chicago, Buffalo	2.35c

Strip and Hoops

(Base, hot rolled, 25-1 ton)
(Base, cold-rolled, 25-3 tons)

Hot strip to 23⅞-in.	
Pittsburgh	1.95c
Chicago or Gary	2.05c
*Birmingham base	2.10c
Detroit, del.	2.15c
Philadelphia, del.	2.26c
New York, del.....	2.30c
Cooperage hoop, Pittsburgh	2.05c
Chicago	2.15c
Cold strip, 0.25 carbon and under, Pitts., Cleveland..	2.60c
Detroit, del.	2.81c
Worcester, Mass..	2.80c

Carbon	Cleve-Pitts.	Worcester, Mass.
0.26—0.50....	2.60c	2.80c
0.51—0.75....	3.45c	3.65c
0.76—1.00....	4.95c	5.15c
Over 1.00....	6.50c	6.70c

Rails, Track Material

(Gross Tons)

Standard rails, mill	$36.37½
Relay rails, Pitts. 20—100 lbs.	25.50-28.00
Light rails, billet qual. Pitts., Chi....	$35.00
Do., reroll. qual....	34.00
Angle bars, billet, Gary, Ind., So. Chi.	2.55c
Do., axle steel.....	2.10c
Spikes, R. R. base..	2.60c
Track bolts, base....	3.60c
Tie plates, base.....	1.90c

Base, light rails 25 to 40 lbs.; 50 to 60 lbs. inclusive up $2; 16 and 20 lbs., up $1; 12 lbs. up $2; 8 and 10 lbs., up $5. Base railroad spikes 200 kegs or more; base tie plates 20 tons.

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chicago. Discounts to legitimate trade as per Dec. 1, 1932, lists:

Carriage and Machine

½ x 6 and smaller.....70-10 off	
Do. larger .....70-5 off	
Tire bolts .....50 off	

Plow Bolts

All sizes .....70-5 off	

Stove Bolts

In packages with nuts attached 75 off; in packages with nuts separate 75-5 off; in bulk 82½ off on 15,000 of 3-inch and shorter, or 5000 over 3-inch.

Step bolts .....65 off	
Elevator bolts .....65 off	

Nuts

S. A. E. semifinished hex.:	
½ to 7/16-inch.....60-20-15 off	
Do., ½ to 1-inch....60-20-15 off	
Do., over 1-inch....60-20-15 off	

Hexagon Cap Screws

Milled .....80-10-10 off	
Upset, 1-in., smaller .....85 off	

Square Head Set Screws

Upset, 1-in., smaller.....75-10 off	
Headless set screws .....75 off	

Rivets, Wrought Washers

Struc., c. l., Pittsburgh, Cleveland	3.05c
Struc., c. l., Chicago	3.15c
7/16-in. and smaller, Pitts., Chi., Cleve.	70 and 5 off
Wrought washers, Pitts., Chi., Phila. to jobbers & large nut, bolt mfrs.....	$6.25 off

Cut Nails

Cut nails, Pitts.; (10% discount on size extras)	$2.75
Do. less carloads, 5 kegs or more, no discount on size extras	$3.05
Do., under 5 kegs; no disc. on size extras.....	$3.20

Pipe and Tubing

Base $200 net ton, except on standard commercial seamless boiler tubes under 2 inches and cold drawn seamless tubing.

Welded Iron, Steel Pipe

Base discounts on steel pipe, Pitts., Lorain, O., to consumers in carloads. Gary, Ind., 2 points less. Chicago, del. 2½ points less. Wrought pipe, Pittsburgh.

Butt Weld

In.	Blk.	Galv.
Steel		
¼ and ⅜	60	44½
½	64½	55
¾	67½	59
1—3	69½	61½
Iron		
½	31½	15
¾	36½	20½
1—1¼	39½	25½
2	41½	26

Lap Weld

Steel		
2	62	53½
2½—3	65	56½
3½—6	67	58½
7 and 8	66	56½
9 and 10	65½	56
Iron		
2	37	22½
2½—3½	38	25
4—8	40	28½

Line Pipe

Steel	
⅛, butt weld	56
¼ and ⅜, butt weld	59
½, butt weld	63½
¾, butt weld	66½
1 to 3, butt weld	68½
2, lap weld	61
2½ to 3, lap weld	64
3½ to 6, lap weld	66
7 and 8, lap weld	65
Iron	

⅛—1½ inch, black and galv. take 4 pts. over; 2½—6 inch 2 pts. over discounts for same sizes, standard pipe lists, 8—12-inch, no extra.

Boiler Tubes

C. L. Discounts, f.o.b. Pitts.

Lap Weld Steel		Charcoal Iron	
2—2¼	33	1¾	8
2½—2¾	40	2—2¼	13
3	47	2½—2¾	16
3¼—3½	50	3	17
4	52	3¼—3½	18
4½—5	42	4	20
		4½	21

In lots of a carload or more, above discounts subject to preferential of two 5% and one 7½% discount on steel and 10% on charcoal iron.

Lapwelded steel: 200 to 9999 pounds, ten points under base, one 5% and one 7½%. Under 2000 pounds 15 points under base, one 5% and one 7½%. Charcoal iron: 10,000 pounds to carloads, base less 5%; under 10,000 lbs., 2 points under base.

Seamless Boiler Tubes

Under date of May 15 in lots of 40,000 pounds or more for cold-drawn boiler tubes and in lots of 40,000 pounds or feet or more for hot-finished boiler tubes, revised prices are quoted for 55 cold-drawn boiler tube sizes ranging from ¼ to 6-inch outside diameter in 30 wall thicknesses, decimal equivalent from 0.035 to 1.000, on a dollars and cents basis per 100 feet and per pound. Less-carloads revised as of July 1, 1935, card.

Hot-finished carbon steel boiler tube prices also under date of May 15 range from 1 through 7 inches outside diameter, inclusive, and embrace 47 size classifications in 22 decimal wall thicknesses ranging from 0.109 to 1.000, prices also being on a lb. and 100 ft. basis.

Seamless Tubing

Cold drawn; f.o.b. mill disc.

100 ft. or 150 lbs.	32%
15,000 ft. or 22,500 lbs.....	70%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

6-in. & over, Birm.	$39.00-40.00
4-in., Birmingham...	42.00-43.00
4-in., Chicago	50.40-51.40
6 to 24-in. Chicago..	47.40-48.40
6-in. & over, east. fdy.	43.00
Do., 4-in.	46.00

Class A pipe $3 over Class B
Stnd. fitgs., Birm. base..$100.00

Semifinished Steel

Billets and Blooms

4 x 4-inch base; gross ton

Pitts., Chi., Cleve., Buffalo & Young.	$30.00
Philadelphia	36.67
Duluth	32.00

Forging Billets

6 x 6 to 9 x 9-in., base

Pitts., Chi., Buff.....	37.00
Forging, Duluth	39.00

Sheet Bars

Pitts., Cleve., Young., Chi., Buff., Canton, Sparrows Pt.	30.00

Slabs

Pitts., Chi., Cleve., Young.	30.00

Wire Rods

Pitts., Cleve., No. 4 to 5	$38.00
Do., No. 5 to ⅜-inch	40.00
Do., over ⅜ to ¾-inch	42.00

Chicago up $1; Worcester up $2

Skelp

Pitts., Chi., Young., Buff., Coatesville, Sparrows Point....	1.80c

Coke

Price Per Net Ton

Beehive Ovens

Connellsville, fur.....	$3.30- 3.65
Connellsville, fdry...	4.25- 4.50
Connel. prem. fdry.	5.50
New River fdry.....	6.00
Wise county fdry....	4.45- 5.00
Wise county fur.....	4.00- 4.50

By-Product Foundry

Newark, N. J., del.	9.70-10.15
Chi., ov., outside del.	9.00
Chicago, del.	9.75
New England, del....	11.50
St. Louis, del.	10.00-10.50
Birmingham, ovens	6.50
Indianapolis, del.	9.40
Cincinnati, del.	9.50
Cleveland, del.	9.75
Buffalo, ovens	7.50- 8.00
Detroit, ov., out. del.	9.00
Philadelphia, del.	9.38

Coke By-Products

Per gallon, producers' plants.

Tank lots	Spot
Pure and 90% benzol.....	18.00c
Toluol	30.00c
Solvent naphtha	30.00c
Industrial xylol	30.00c

Per lb. f.o.b. Frankford,

Phenol (200 lb. drums)..	15.50c
Do. (450 lbs.)	14.50c

Eastern Plants, per lb.

Naphthalene flakes and balls, in bbls., to jobbers	7.25c

Per 100 lbs. Atlantic seaboard

Sulphate of ammonia.....	$1.25

†Western prices, ½-cent up.

Pig Iron

Delivered prices include switching charges only as noted. No. 2 foundry is 1.75-2.25 sil.; 25c diff. for each 0.25 sil. above 2.25; 50c diff. for each 0.25 below 1.75. Gross tons.

Basing Points:	No. 2 Fdry.	Malleable	Basic	Bessemer
Bethlehem, Pa.	$20.50	$21.00	$20.00	$21.50
Birdsboro, Pa.	20.50	21.00	20.00	21.50
Birmingham, Ala., southern del.	15.50	15.50	14.50	21.00
Buffalo	19.50	20.00	18.50	20.50
Chicago	19.50	19.50	19.00	20.00
Cleveland	19.50	19.50	19.00	20.00
Detroit	19.50	19.50	19.00	20.00
Duluth	20.00	20.00	.....	20.50
Erie, Pa.	19.50	20.00	19.00	20.50
Everett, Mass.	20.50	21.00	20.00	21.50
Hamilton, O.	19.50	19.50	19.00	.....
Jackson, O.	20.25	20.25	19.75	.....
Neville Island, Pa.	19.50	19.50	19.00	20.00
Provo, Utah	17.50	.....	17.00	.....
Sharpsville, Pa.	19.50	19.50	19.00	20.00
Sparrows Point, Md.	20.50	.....	20.00	.....
Swedeland, Pa.	20.50	21.00	20.00	21.50
Toledo, O.	19.50	19.50	19.00	20.00
Youngstown, O.	19.50	19.50	19.00	20.00
Delivered from Basing Points:				
Akron, O., from Cleveland	20.76	20.76	26.26	21.26
Baltimore from Birmingham	21.08	.....	19.96	.....
Boston from Birmingham	20.62	.....	20.50	.....
Boston from Everett, Mass.	21.00	21.50	20.50	22.00
Boston from Buffalo	21.00	21.50	20.50	22.00
Brooklyn, N. Y., from Bethlehem	22.93	23.43	.....	.....
Brooklyn, N. Y., from Bmghm.	22.50	.....	.....	.....
Canton, O., from Cleveland	20.76	20.76	20.26	21.26
Chicago from Birmingham	†19.72	.....	19.60	.....
Cincinnati from Hamilton, O.	20.58	20.58	20.08	.....
Cincinnati from Birmingham	20.20	.....	19.20	.....
Cleveland from Birmingham	19.62	.....	19.12	.....
Indianapolis from Hamilton, O.	21.93	21.93	21.43	22.43
Mansfield, O., from Toledo, O.	21.26	21.26	20.76	21.76
Milwaukee from Chicago	20.57	20.57	20.27	21.07
Muskegon, Mich., from Chicago Toledo or Detroit	22.60	22.60	22.10	23.10
Newark, N. J., from Birmingham	21.61	.....	.....	.....
Newark, N. J., from Bethlehem	21.99	22.49	.....	.....
Philadelphia from Birmingham	20.93	.....	20.81	.....
Philadelphia from Swedeland, Pa.	21.31	21.81	20.81	.....
Pittsburgh district from Neville Island	Neville base plus 67c, 81c and $1.21 switching charges			
Saginaw, Mich., from Detroit	21.75	21.75	21.25	21.25
St. Louis, northern	20.00	20.00	19.50	.....

Delivered from Basing Points:	No. 2 Fdry.	Malleable	Basic	Bessemer
St. Louis from Birmingham	†19.68	.....	19.50	.....
St. Paul from Duluth	21.94	21.94	.....	22.44

†Over 0.70 phos.

Low Phos.

Basing Points: Birdsboro and Steelton, Pa., and Standish, N. Y., $24.00, Phila. base, standard and copper bearing, $25.13.

Gray Forge		Charcoal	
Valley furnace	19.00	Lake Superior fur.	$22.00
Pitts. dist. fur.	19.00	Do., del. Chicago	25.25
		Lylees, Tenn.	22.50

Silvery†

Jackson county, O., base; 6-6.50 per cent $22.75; 6.51-7—$23.25; 7-7.50—$23.75; 7.51-8—$24.25; 8-8.50—$24.75; 8.51-9—$25.25; 9-9.50—$25.75. Buffalo $1.25 higher.

Bessemer Ferrosilicon†

Jackson county, O., base: Prices are the same as for silveries plus $1 a ton.

†The lower all-rail delivered price from Jackson, O., or Buffalo is quoted with freight allowed.

Manganese differentials in silvery iron and ferrosilicon, 2 to 3%, $1 per ton add. Each unit over 3%, add $1. per ton.

Refractories

Per 1000 f.o.b. Works

Fire Clay Brick

Super Quality

Pa., Mo., Ky.	$55.00

First Quality

Pa., Ill., Md., Mo., Ky.	$45.00
Alabama, Georgia	$38.00-45.00

Second Quality

Pa., Ill., Ky., Md., Mo.	40.00
Georgia, Alabama	35.00

Ohio

First quality	$40.00
Intermediary	37.00
Second quality	28.00

Malleable Bung Brick

All bases	50.00

Silica Brick

Pennsylvania	$45.00
Joliet, E. Chicago	54.00
Birmingham, Ala.	48.00

Ladle Brick (Dry Press)

Pa., O., W. Va., Mo.	$24.00
Do., wire cut	22.00

Magnesite

Imported dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	$45.00
Domestic dead-burned grains, net ton f.o.b. Chester, Pa., and Baltimore bases (bags)	40.00
Domestic dead-burned gr. net ton f.o.b. Chewelah, Wash. (bulk)	22.00

Basic Brick

Net ton, f.o.b. Baltimore, Plymouth Meeting, Chester, Pa.

Chrome brick	$45.00
Chem. bonded chrome	45.00
Magnesite brick	65.00
Chem. bonded magnesite	55.00

Fluorspar, 85-5

Washed gravel, duty paid, tide, net ton	$21.50
Washed gravel, f.o.b. Ill., Ky., net ton, carloads, all rail	$18.00
Do., for barge	$19.00

Ferroalloys

Dollars, except Ferrochrome

Ferromanganese, 78-82% tidewater, duty paid	75.00
Do., Balti., base	75.00
Do., del. Pittsb'gh	80.13
Spiegeleisen, 19-20% dom. Palmerton, Pa., spot†	26.00
Do., New Orleans	26.00
Ferrosilicon, 50% freight all., cl.	69.50
Do., less carload	77.00
Do., 75 per cent	126-130.00
Spot, $5 a ton higher.	
Silicoman., 2½ carb.	85.00
2% carbon, 90.00; 1%,	100.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb. del.	10.00
Ferrotungsten, stand., lb. con. del.	1.30- 1.40
Ferrovanadium, 35 to 40% lb., cont.	2.70- 2.90
Ferrotitanium, c. l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt. allow., lb.	7.00
Do., under 1 ton	7.50
Ferrophosphorus, per ton, c. l., 17-19% Rockdale, Tenn., basis, 18%, $3 unitage	58.50
Ferrophosphorus, electrolytic, per ton c. l., 23-26% f.o.b. Anniston, Ala., 24% $3 unitage	75.00
Ferromolybdenum, stand. 55-65%, lb.	0.95
Molybdate, lb. cont.	0.80

†Carloads. Quan. diff. apply

Nonferrous

METAL PRICES OF THE WEEK

Spot unless otherwise specified. Cents per pound

	Copper: Electro, del. Conn.	Copper: Lake, del. Midwest	Copper: Casting, refinery	Straits Tin: New York Spot	Straits Tin: New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 99%	Antimony Chinese Spot, N. Y.	Nickel Cathodes
July 25	9.75	9.87½	9.40	44.12½	42.87½	4.60	4.45	4.80	*19.00	13.00	35.00
July 27	9.75	9.87½	9.40	41.85	40.87½	4.60	4.45	4.80	*19.00	13.00	35.00
July 28	9.75	9.87½	9.40	42.50	41.62½	4.60	4.45	4.80	*19.00	13.00	35.00
July 29	9.75	9.87½	9.40	43.00	41.87½	4.60	4.45	4.80	*19.00	13.00	35.00
July 30	9.75	9.87½	9.40	42.75	41.75	4.60	4.45	4.80	*19.00	13.00	35.00
July 31	9.75	9.87½	9.40	42.75	41.75	4.60	4.45	4.80	*19.00	13.00	35.00

*Nominal range 19.00 to 21.00c.

MILL PRODUCTS

F.o.b. mill base, cents per lb. except as specified. Copper brass products based on 9.75c Conn. copper

Sheets

Yellow brass (high)	15.37½
Copper, hot rolled	17.25
Lead cut to jobbers	8.25
Zinc, 100-lb. base	9.50

Tubes

High yellow brass	17.62½
Seamless copper	17.75

Rods

High yellow brass	13.37½
Copper, hot rolled	14.00

Anodes

Copper, untrimmed	14.75

Wire

Yellow brass (high)	15.62½

OLD METALS

Deal. buying prices, cents lb.

No. 1 Composition Red Brass

New York	6.12½-6.37½
Cleveland	6.40- 6.75
Chicago	6.00- 6.25
*St. Louis	6.00- 6.25

Heavy Copper and Wire

*New York, No. 1	7.75- 8.00
Chicago, No. 1	7.50- 7.75
Cleveland, No. 1	7.25- 7.75
St. Louis, No. 1	7.25- 7.75

Composition Brass Borings

New York	5.87½-6.12½

Light Copper

*New York	6.37½- 6.50
Chicago	6.00- 6.25
Cleveland	6.00- 6.25
St. Louis	5.75- 6.25

Light Brass

Chicago	3.62½- 3.75
Cleveland	3.40- 3.65
St. Louis	3.40- 3.90

Lead

New York	3.50- 3.75
Cleveland	3.50- 3.75
Chicago	3.25- 3.75
St. Louis	3.25- 3.75

Zinc

New York	2.25- 2.50
Cleveland	2.25- 2.50
St. Louis	2.50- 2.75

Aluminum

*Borings, Cleveland	9.00- 9.50
*Mixed, cast, Cleve.	12.00-12.25
Mixed, cast, St. L.	11.25-11.75
*Clips, soft, Cleve.	14.00-14.50

SECONDARY METALS

Brass ingot, 85-5-5-5	9.75
Stand. No. 12 alum.	16.25-16.75

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated; † indicates brokers prices

HEAVY MELTING STEEL

Birmingham†	9.00-12.00
Bos. d'ck, No. 1, exp.	†10.75-11.00
N. Eng. del. No. 1..	11.75
Buffalo, No. 1	13.00-13.50
Buffalo, No. 2	11.50-12.00
Chicago, No. 1	13.50-14.00
Cleveland, No. 1	13.50-14.00
Cleveland, No. 2	12.50-13.00
Detroit, No. 1	12.50-13.00
Eastern Pa., No. 1..	12.50-13.00
Eastern Pa., No. 2..	11.50-12.00
Federal, Ill.	10.00-10.50
Granite City, R. R...	11.75-12.25
Granite City, No. 2..	9.75-10.25
New York, No. 2	†8.25- 8.75
N. Y. d'ck, No. 1, exp.	†10.50
Pitts., No. 1 (R.R.)	15.25-15.75
Pitts., No. 1 (dlr.)..	14.75-15.25
Pittsburgh, No. 2....	13.50-14.00
St. Louis, R. R.	11.50-12.00
St. Louis No. 2	9.75-10.25
Toronto, dealers	7.50
Valleys, No. 1	14.00-14.50

COMPRESSED SHEETS

Buffalo, dealers	11.50-12.00
Chicago, factory	12.50-13.00
Chicago, dealer	11.75-12.25
Cleveland	13.25-13.75
Detroit	11.75-12.25
E. Pa., new mat.	12.50-13.00
E. Pa., old mat.	10.50-10.75
Pittsburgh	14.75-15.25
St. Louis	7.75- 8.25
Valleys	13.25-13.75

BUNDLED SHEETS

Buffalo	10.00-10.50
Cincinnati, del	7.75- 8.25
Cleveland	10.00-10.50
Pittsburgh	13.50-14.00
St. Louis	6.25- 6.75
Toronto, dealers	4.50

SHEET CLIPPINGS, LOOSE

Chicago	8.00- 8.50
Cincinnati	6.25- 6.75
Detroit	8.75- 9.25
St. Louis	5.50- 6.00

STEEL RAILS, SHORT

Birmingham	11.50-12.00
Buffalo	15.50-16.00
Chicago (3 ft.)	16.00-16.50
Chicago (2 ft.)	16.50-17.00
Cincinnati, del.	14.50-15.00
Detroit	15.50-16.00
Pitts., open-hearth, 3 ft. and less	16.00-16.50
St. Louis, 2 ft. & less	15.50-16.00

STEEL RAILS, SCRAP

Boston district	†7.50- 8.00
Chicago	13.50-14.00
Pittsburgh	14.50-15.00
St. Louis	13.25-13.75
Buffalo	13.00-13.50
Toronto, dealers	8.50

STOVE PLATE

Birmingham	8.00- 9.00
Boston district	†6.00- 6.25
Buffalo	10.00-10.25
Chicago	7.50- 8.00
Cincinnati, dealers..	7.75- 8.50
Detroit, net	9.00- 9.50
Eastern Pa.	10.50-11.00
New York, fdry	†7.00- 7.25
St. Louis	7.50- 8.00
Toronto, dealers, net	5.50

COUPLERS, SPRINGS

Buffalo	15.00-15.50
Chicago, springs	15.50-16.00
Eastern Pa.	16.00-16.50
Pittsburgh	17.75-18.25
St. Louis	13.25-13.75

ANGLE BARS—STEEL

Chicago	15.50-16.00
St. Louis	14.00-14.50
Buffalo	14.50-15.00

RAILROAD SPECIALTIES

Chicago	15.50-16.00

LOW PHOSPHORUS

Buffalo, billet and bloom crops	15.00-15.50
Cleveland, billet, bloom crops	17.50-18.00
Eastern Pa., crops..	16.50
Pittsburgh, billet, bloom crops	18.00-18.50
Pittsburgh, sheet bars crops	17.25-17.75

FROGS, SWITCHES

Chicago	13.50-14.00
St. Louis, cut	13.00-13.50

SHOVELING STEEL

Chicago	13.50-14.00
Federal, Ill.	10.00-10.50
Granite City, Ill.	9.75-10.00
Toronto, dealers	6.50

RAILROAD WROUGHT

Birmingham	7.50- 8.00
Boston district	†7.25- 7.50
Buffalo, No. 1	11.50-12.00
Buffalo, No. 2	13.00-13.50
Chicago, No. 1, net..	12.50-13.00
Chicago, No. 2	13.50-14.00
Cincinnati, No. 2	10.75-11.25
Eastern Pa.	14.00-14.50
St. Louis, No. 1	11.25-11.75
St. Louis, No. 2	11.75-12.25
Toronto, No. 1, dlr.	7.00

SPECIFICATION PIPE

Eastern Pa.	12.00-12.50
New York	†7.75- 8.25

BUSHELING

Buffalo, No. 1	11.50-12.00
Chicago, No. 1	12.25-12.75
Cinci., No. 1, deal	8.75- 9.25
Cincinnati, No. 2	4.50- 5.00
Cleveland, No. 2	8.75- 9.00
Detroit, No. 1, new	10.50-11.00
Valleys, new, No. 1..	13.25-13.75
Toronto, dealers	6.00

MACHINE TURNINGS

Birmingham	4.00- 5.00
Buffalo	6.50- 7.00
Chicago	6.00- 6.50
Cincinnati, dealers..	5.75- 6.25
Cleveland	8.50- 8.75
Detroit	7.00- 7.50
Eastern Pa.	8.00- 8.50
New York	†4.25- 4.50
Pittsburgh	10.25-10.75
St. Louis	4.00- 4.50
Toronto, dealers	4.00
Valleys	9.75-10.00

BORINGS AND TURNINGS

For Blast Furnace Use

Boston district	†2.25
Buffalo	8.00- 8.25
Cincinnati, dealers..	5.00- 5.50
Cleveland	8.75- 9.00
Detroit	7.50- 8.00
Eastern Pa.	6.50- 7.00
New York	†2.25- 2.50
Pittsburgh	10.50-11.00
Toronto, dealers	4.00

CAST IRON BORINGS

Birmingham, plain..	4.00- 5.00
Boston dist. chem...	†6.25- 6.75
Boston dist. for mills	†3.50- 4.00
Buffalo	8.00- 8.50
Chicago, dealers	7.00-7.50
Cincinnati, dealers..	5.00- 5.50
Cleveland	8.75- 9.00
Detroit	7.50- 8.00
E. Pa., chemical	10.00-13.00
New York	†4.25- 4.50
St. Louis	3.50- 4.00
Toronto, dealers	5.00

PIPE AND FLUES

Cincinnati, dealers..	7.50- 8.00
Chicago, net	8.00- 8.50

RAILROAD GRATE BARS

Buffalo	10.50-11.00
Chicago, net	8.75- 9.25
Cincinnati	7.00- 7.50
Eastern Pa.	10.00-10.50
New York	†6.00- 6.25
St. Louis	9.00- 9.50

FORGE FLASHINGS

Boston district	†7.50- 7.75
Buffalo	11.50-12.00
Cleveland	12.50-13.00
Detroit	10.00-10.50
Pittsburgh	13.00-13.50

FORGE SCRAP

Boston district	†5.50- 6.00
Chicago, heavy	15.50-16.00
Eastern Pa.	12.00-12.50

ARCH BARS, TRANSOMS

St. Louis	13.50-14.00

AXLE TURNINGS

Boston district	†5.75- 6.00
Buffalo	11.00-11.50
Chicago, elec. fur.	13.00-13.50
Eastern Pa.	11.50-12.00
St. Louis	9.50-10.00
Toronto	4.50

STEEL CAR AXLES

Birmingham	11.50-12.50
Boston district	†11.50-11.75
Buffalo	15.50-16.00
Chicago, net	16.00-16.50
Eastern Pa.	17.00
St. Louis	14.50-15.00
Toronto	8.50

SHAFTING

Boston district	†13.75-14.25
Eastern Pa.	19.00-19.50
New York	†14.25-14.75
St. Louis	13.50-14.00

CAR WHEELS

Birmingham	11.00-11.50
Boston dist. iron	†7.75- 8.00
Buffalo, iron	13.50-14.00
Buffalo, steel	15.50-16.00
Chicago, iron	14.00-14.50
Chicago, rolled steel	15.50-16.00
Cincinnati, iron	10.50-11.00
Eastern Pa., iron	14.50-15.00
Eastern Pa., steel	16.00-16.50
Pittsburgh, iron	15.00-15.50
Pittsburgh, steel	17.75-18.25
St. Louis, iron	11.50-12.00
St. Louis, steel	14.00-14.50
Toronto, net	8.50

NO. 1 CAST SCRAP

Birmingham	11.00-12.00
Bos. dist. No. 1 mach.	†9.00- 9.25
N. Eng., del. No. 2..	9.50-10.00
N. Eng. del. textile..	11.00-11.50
Buffalo, cupola	12.00-12.50
Buffalo, mach.	13.50-14.00
Chicago, agri. net	10.00-10.50
Chicago, auto	11.00-11.50
Chicago, mach. net..	12.50-13.00
Chicago, railr'd net..	11.50-12.00
Cinci., mach. cup	11.75-12.25
Cleveland, mach.	15.25-15.75
Eastern Pa., cupola	14.50-15.00
E. Pa., mixed yard..	12.50-13.00
Pittsburgh, cupola..	15.50-16.00
San Francisco, del..	13.50-14.00
Seattle	10.00-11.00
St. Louis, No. 1	10.75-11.25
St. L., No. 1 mach.	12.50-13.00
Toronto, No. 1, mach., net	9.00

HEAVY CAST

Boston dist. break...	†8.75- 9.00
New England del....	9.50-10.00
Buffalo, break.	10.50-11.00
Cleveland, break.	12.50-13.00
Detroit, No. 1 mach. net	13.00-13.50
Detroit, break.	11.50-12.00
Detroit, auto net	12.00-12.50
Eastern Pa.	14.00
New York breakable	†9.75-10.25
Pittsburgh	13.00-13.50

MALLEABLE

Birmingham, R. R...	11.50-12.50
New England del....	15.00-16.00
Buffalo	15.50-16.00
Chicago, R. R.	16.00-16.50
Cincinnati, agri. del.	12.50-13.00
Cleveland, rail	15.75-16.25
Detroit, auto, net....	14.50-15.00
Eastern Pa., R. R...	15.50-15.75
Pittsburgh, rail	17.50-18.00
St. Louis, R. R.	13.00-13.50
Toronto, net	7.00

RAILS FOR ROLLING

5 feet and over

Birmingham	11.50-12.50
Boston district	†9.00- 9.50
Buffalo	14.00-14.50
Chicago	14.50-15.00
Eastern Pa.	15.00-15.50
New York	†10.00-10.50
St. Louis	13.75-14.25

LOCOMOTIVE TIRES

Chicago (cut)	15.50-16.00
St. Louis, No. 1	12.00-12.50

LOW PHOS. PUNCHINGS

Buffalo	15.00-15.50
Chicago	16.50-17.00
Eastern Pa.	16.00-16.50
Pittsburgh (heavy)	17.50-18.00
Pittsburgh (light)..	16.50-17.00

Iron Ore

Lake Superior Ore

Gross ton, 51½%

Lower Lake Ports

Old range bessemer	$4.80
Mesabi nonbess.	4.50
High phosphorus	4.40
Mesabi bessemer	4.65
Old range nonbess.	4.65

Eastern Local Ore

Cents, unit, del. E. Pa.

Foundry and basic 56-63% con. (nom.)	8.00- 9.00
Cop.-free low phos. 58-60% (nom.)	10.00-10.50

Foreign Ore

Cents per unit, f.a.s. Atlantic ports (nominal)

Foreign manganiferous ore, 45.55% iron, 6-10% man.	10.50
No. Afr. low phos.	10.50
Swedish basic, 65%	9.50
Swedish low phos..	10.50
Spanish No. Africa basic, 50 to 60%	10.50
Tungsten, spot sh. ton unit, duty pd.	$15.85-16.00
N. F., fdy., 55%	7.00
Chrome ore, 48% gross ton, c.i.f.	19.25

Manganese Ore

(Nominal)

Prices not including duty, cents per unit cargo lots

Caucasian, 50-52%	26.00
So. African, 50-52%	26.00
Indian, 50-52%	26.00

Warehouse Iron and Steel Prices

Cents per pound for delivery within metropolitan districts of cities specified

STEEL BARS

Baltimore*	3.10c
Boston††	3.20c
Buffalo	3.10c
Chattanooga	3.46c
Chicago (j)	3.10c
Cincinnati	3.32c
Cleveland	3.00c
Detroit	3.19c
Houston	3.10c
Los Angeles	3.70c
Milwaukee	3.21c-3.36c
New Orleans	3.45c
New York‡ (d)	3.41c
Pitts. (h)	3.05c-3.20c
Philadelphia*	3.15c
Portland	3.60c
San Francisco	3.35c
Seattle	3.80c
St. Louis	3.35c
St. Paul	3.35c-3.50c
Tulsa	3.35c

IRON BARS

Portland	3.50c
Chattanooga	3.46c
Baltimore*	3.10c
Chicago	2.85c
Cincinnati	3.32c
New York‡(d)	3.15c
Philadelphia*	3.15c
St. Louis	3.35c
Tulsa	3.35c

REINFORCING BARS

Buffalo	2.60c
Chattanooga	3.46c
Chicago	2.10c-2.60c
Cleveland (c)	2.10c
Cincinnati	3.25c
Houston	3.25c
Los Angl., cl.	2.45c
New Orleans	3.50c
Pitts., plain (h)	3.05c
Pitts., twisted squares (h)	3.175c
San Francisco	2.45c
Seattle	3.50c
St. Louis	3.35c
Tulsa	3.25c
Young	2.30c-2.60c

SHAPES

Baltimore*	3.10c
Boston††	3.29c
Buffalo	3.35c
Chattanooga	3.66c
Chicago	3.30c
Cincinnati	3.52c
Cleveland	3.41c
Detroit	3.52c
Houston	3.10c
Los Angeles	3.70c
Milwaukee	3.41c
New Orleans	3.65c
New York‡(d)	3.47c
Philadelphia*	3.10c
Pittsburgh (h)	3.25c
Portland (i)	3.60c
San Francisco	3.35c
Seattle (i)	3.80c
St. Louis	3.45c
St. Paul	3.55c
Tulsa	3.60c

PLATES

Baltimore*	3.10c
Boston††	3.31c
Buffalo	3.47c
Chattanooga	3.66c
Chicago	3.30c
Cincinnati	3.52c
Cleveland, ¼-in. and over	3.41c
Detroit	3.52c
Detroit, 3/16-in.	3.85c
Houston	3.10c
Los Angeles	3.70c
Milwaukee	3.41c
New Orleans	3.65c
New York‡(d)	3.50c
Philadelphia*	3.10c
Phila. floor	4.95c
Pittsburgh (h)	3.25c
Portland	3.60c
San Francisco	3.35c
Seattle	3.65c
St. Louis	3.55c
St. Paul	3.55c
Tulsa	3.60c

NO. 10 BLUE

Baltimore*	3.10c
Boston (g)	3.40c
Buffalo	3.72c
Chattanooga	3.46c
Chicago	3.15c
Cincinnati	3.32c
Cleveland	3.21c
Det. 8-10 ga.	3.24c
Houston	3.45c
Los Angeles	3.85c
Milwaukee	3.26c
New Orleans	3.65c
New York‡(d)	3.41c
Portland	3.85c
Philadelphia*	3.20c
Pittsburgh (h)	3.05c
San Francisco	3.45c
Seattle	3.85c
St. Louis	3.40c
St. Paul	3.40c
Tulsa	3.80c

NO. 24 BLACK

Baltimore*†	3.70c
Boston (g)	4.05c
Buffalo	3.35c
Chattanooga*	3.41c
Chicago	3.95c
Cincinnati	4.12c
Cleveland	3.91c
Detroit	4.04c
Los Angeles	4.45c
Milwaukee	4.06c
New Orleans	4.50c
New York‡(d)	3.99c
Philadelphia*†	3.75c
Pitts.**(h)	3.55c-4.85c
Portland	4.20c
San Francisco	4.10c
Seattle	4.50c
St. Louis	4.20c
St. Paul	4.00c
Tulsa	4.85c

NO. 24 GALV. SHEETS

Baltimore*†	3.90c
Buffalo	4.10c
Boston (g)	4.05c
Chattanooga*	3.96c
Chicago (h)	4.65c
Cincinnati	4.82c
Cleveland	4.61c
Detroit	4.82c
Houston	4.50c
Los Angeles	4.50c
Milwaukee	4.76c
New Orleans	4.95c
N. Y.‡ (d)	4.30-4.50c
Philadelphia*†	4.50c
Pitts.**(h)	4.30c-5.55c
Portland	4.60c
San Francisco	4.60c
Seattle	5.10c
St. Louis	4.90c
St. Paul	4.60c
Tulsa	5.20c

BANDS

Baltimore*	3.30c
Boston††	3.40c
Buffalo	3.52c
Chattanooga	3.71c
Chicago	3.40c
Cincinnati	3.57c
Cleveland	3.46c
Detroit, 3/16-in. and lighter	3.49c
Houston	3.35c
Los Angeles	4.20c
Milwaukee	3.51c
New Orleans	4.05c
New York‡(d)	3.66c
Philadelphia*	3.30c
Pittsburgh (h)	3.30c
Portland	4.35c
San Francisco	4.20c
Seattle	4.35c
St. Louis	3.65c
St. Paul	3.65c
Tulsa	3.55c

HOOPS

Baltimore	2.30c
Boston††	4.40c
Buffalo	3.52c
Chicago	3.40c
Cincinnati	3.57c
Det., No. 14 and lighter	3.49c
Los Angeles	5.95c
Milwaukee	3.51c
New York‡(d)	3.66c
Philadelphia*	3.55c
Pittsburgh (h)	3.80c
Portland	5.70c
San Francisco	6.25c
Seattle	5.70c
St. Louis	3.65c
St. Paul	3.65c

COLD FIN. STEEL

Baltimore (c)	3.88c
Boston	4.05c
Buffalo (h)	3.70c
Chattanooga*	4.28c
Chicago (h)	3.65c
Cincinnati	3.87c
Cleveland (h)	3.65c
Detroit	3.74c
Los Ang. (f) (d)	6.00c
Milwaukee	3.76c
New Orleans	4.45c
New York‡(d)	3.96c
Philadelphia*	3.91c
Pittsburgh	3.50c
Portland (f) (d)	6.30c
San Fran. (f) (d)	6.10c
Seattle (f) (d)	6.25c
St. Louis	3.90c
St. Paul	4.17c
Tulsa	4.80c

COLD ROLLED STRIP

Boston	3.245c
Buffalo	3.39c
Chicago	3.27c
Cincinnati (b)	3.22c
Cleveland (b)	3.00c
Detroit	3.18c
New York‡(d)	3.36c
St. Louis	3.41c

TOOL STEELS

(Applying on or east of Mississippi river; west of Mississippi 1c up)

	Base
High Speed	59½c
High carbon, high chrome	39c
Oil hardening	23c
Special tool	21c
Extra tool	17¾c
Regular tool	14½c

Uniform extras apply

BOLTS AND NUTS

(100 pounds or over)

	Discount
Chicago (a)	65
Cleveland	70
Detroit	70
Milwaukee	70
Pittsburgh	65-5

(a) Under 100 pounds, 60 off.

(b) Plus straightening, cutting and quantity differentials; (c) Plus mill, size and quantity extras; (d) Quantity base; (e) New mill classif. (f) Rounds only; (g) 50 bundles or over; (h) Outside delivery, 10c less; (i) Under 3 in.; (j) Shapes other than rounds, flats, fillet angles, 3.25c.

Prices on heavier lines are subject to new quantity differentials: 399 lbs. and less, up 50 cts.; 400 to 3999 lbs., base; 4000 to 7999 lbs., 15 cts., under; 8000 to 14,999 lbs., 25 cts. under; 15,000 to 39,999 lbs., 35 cts. under; 40,000 lbs. and over, 50 cts. under; (except Boston).

‡Domestic steel; *Plus quan. extras; **Under 25 bundles; *†50 or more bundles; †New extras apply; ††Base 40,000 lbs., extras on less.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, July 30

Export Prices f. o. b. Ship at Port of Dispatch—(By Cable or Radio)

PIG IRON	British gross tons U. K. ports £ s d	Continental Channel or North Sea ports, metric tons Quoted in dollars at current value	**Quoted in gold pounds sterling £ s d
Foundry, 2.50-3.00 Silicon	$15.68 3 2 6*	$13.89	1 15 0
Basic bessemer	15.68 3 2 6*	11.51	1 9 0
Hematite, Phos. .03-.05	18.69 3 14 6	.....	.....
SEMIFINISHED STEEL			
Billets	$29.48 5 17 6	$18.65	2 7 0
Wire rods, No. 5 gage	44.91 8 19 0	35.74	4 10 0
FINISHED STEEL			
Standard rails	$41.39 8 5 0	$43.67	5 10 0
Merchant bars	1.73c 7 15 0	1.12c to 1.17c	3 2 6 to 3 5 0
Structural shapes	1.68c 7 10 0	1.10c	3 1 6
Plates, †¼ in. or 5 mm.	1.80c 8 1 3	1.53c	4 5 0
Sheets, black, 24 gage or 0.5 mm.	2.18c 9 15 0	2.13c	6 1 0††
Sheets, gal., 24 gage, corr.	2.63c 11 15 0	2.43c	6 15 0
Bands and strips	1.96c 8 15 0	1.43c	4 0 0
Plain wire, base	2.18c 9 15 0	1.89c	5 5 0
Galvanized wire, base	2.58c 11 10 0	2.10c	5 17 6
Wire nails, base	2.69c 12 0 0	1.71c	4.15 0
Tin plate, box 108 lbs.	$ 4.70 0 18 9	.....	.....

British ferromanganese $75 delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d $(43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$18.83	3 15 0(a)	$17.16	260	$11.38	410	$25.38 63
Basic bessemer pig iron	18.83	3 15 0(a)	12.54	190	9.72	350	28.00 (b) 69.50
Furnace coke	5.62	1 2 6	6.27	95	3.40	122	7.66 19
Billets	30.71	6 2 6	28.38	430	13.88	555	38.88 96.50
Standard rails	1.87c	8 5 0	2.00c	671	1.25c	1,000	2.40c 132
Merchant bars	2.12c	9 7 0	1.67c	560	.81c	650	2.00c 110
Structural shapes	2.13c	9 7 6	1.64c	550	.81c	650	1.95c 107
Plates, †¼-in. or 5 mm.	2.15c	9 13 9	2.08c	700	1.00c	800	2.31c 127
Sheets, black	2.61c	11 10 0§	1.79c	600‡	1.10c	875‡	2.63c 144‡
Sheets, galv., corr., 24 ga. or 0.5 mm.	3.07c	13 10 0	2.99c	1,000	1.88c	1,500	6.76c 370
Plain wire	2.20c	9 15 0	2.84c	950	1.44c	1,150	.16c — 73
Bands and strips	2.29c	10 2 0	1.94c	650	1.00c	800	2.31c — 27

*Basic. †British ship-plates. Continental, bridge plates. §24 ga. ‡1 to 3 mm. basic price. British quotations are for basic open-hearth steel. Continent usually for basic-bessemer steel. a del. Middlesbrough. b hematite. ††Close annealed.

**Gold pound sterling carries a premium of 63.00 per cent over paper sterling.

Bars

Bar Prices, Page 68

Pittsburgh—In spite of a lull in automotive buying of bars, buying is active from other consuming lines. Consequently, fresh specifications for bars during July were less than 15 per cent in aggregate under the June total, which is a remarkable showing in view of the price change July 1. Activity in the alloy bar market is fairly steady, but most orders are running to small size.

Cleveland — Requirements from auto partsmakers is mild in contrast to the heavy demand before the middle of July. Cold bar finishers are in the market for a good deal of tonnage in an effort to rebuild stocks. New business has been heavy through July. This condition has left a few mills with orders still on books that were placed in the last rush of June buying. The excessive hot weather was another factor in holding up delivery.

Chicago—A good outlook prevails for August bar production despite some slackening in new business last month. Automotive needs probably will be less, but miscellaneous users are expected to continue to buy freely. Farm implement and tractor manufacturers are watching effects of the drought closely, though their worst fears have yet to be realized. Last week some rush orders for steel were placed when schedules at certain plants failed to decline as was anticipated. Bar deliveries average about three weeks.

New York—New bar tonnage is slowing up, although there is still considerable pressure for deliveries of steel under contract. Deliveries on carbon bars average more than three weeks and on hot alloy bars, especially where the producer does the heat treating, the delivery date is much further extended.

Philadelphia—While there is some decline in new inquiry, commercial and alloy steel bar sellers are still being pressed for deliveries. On carbon bars they are able to offer little less than three weeks and on hot alloy bars they are not able to do that in most cases. As a matter of fact, where the producer has to do the heat treating, deliveries on alloy bars are virtually out of sight—extending into October. Cold-drawn carbon bars are well extended also. Prices are strong.

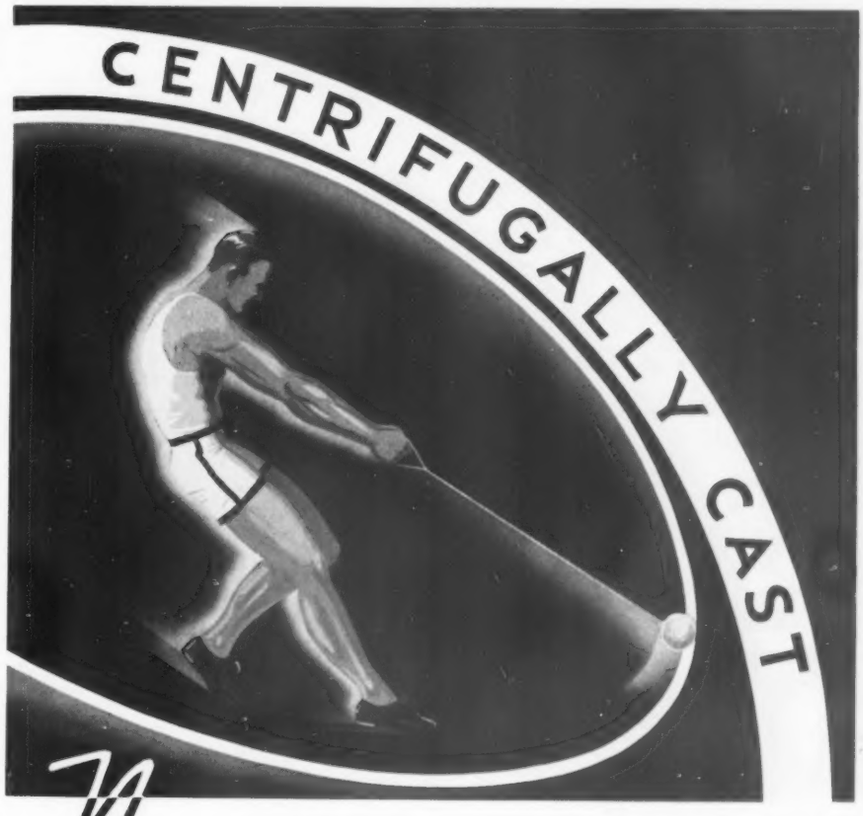
Tin Plate

Tin Plate Prices, Page 68

Philadelphia — Tin plate sellers here, booked ahead about eight weeks, are having difficulty meeting demands; nevertheless there has been some slight let-up in new specifications recently. Incidentally, a local oil company, producing cans for its own requirements, is said to be curtailing its output of containers, restricting production largely to 5-gallon cans and placing its requirements for smaller cans with other manufacturers.

Pittsburgh — In some cases pressure for delivery of hot-rolled and cold-reduced tin plate has neared a critical stage, for producers still engaging all available working capacity last week were unable to promise earlier than four to five weeks on hot-plate and seven to eight weeks on cold-reduced plate delivery. Apparently, canning crops have not been affected by mid-western drouth, and in addition to heavy tin plate requirements on packers' cans, demand for general line cans is at a high point.

Briggs Mfg. Co., Detroit, ordered an extra of 50 cents in addition to a regular dividend of 50 cents, both payable July 30 to stock of record July 16.



Nature's on our payroll

—or she *should* be. Employing the centrifugal force of nature, putting it to work in our foundries, is our method of producing a better casting of Bronze Alloy, Monel Metal, Nickel, Iron, or Semi-Steel.

ROLLS, SLEEVES, LINERS, BUSHINGS, BEARINGS and CASTINGS produced by this method find their way into the "tough spots" all over the world. Perhaps you have a place or a product that would benefit by their application?

It costs you nothing to find out. Write.

SHENANGO-PENN MOLD COMPANY

Plant, Dover, Ohio

Executive Offices: Oliver Bldg., Pittsburgh

Plates

Plate Prices, Page 68

Pittsburgh — Jones & Laughlin Steel Corp., Pittsburgh, has placed orders with its own shops for construction of ten 132-foot all-welded convertible steel barges. These will be used in the downriver trade and will bring the Jones & Laughlin fleet to 50. These units will be the first all-welded constructed for this fleet. The entire order requires 2180 tons of plates and structural shapes. Railroad car shops are still active plate buyers and there is noticeable demand for material for small tanks. The f.o.b. Pittsburgh quotation is firm at 1.90c, base, as protections have now expired on specific plate building jobs at the former 1.80c base.

Cleveland — Large plate orders have been noticeably lacking for some time, but July proved as good as June. Most of the demand resulted from small lot orders on identified jobs placed before the price advance. Freight car building and repair shops are the largest single consumers, with enough work to last most of them through August. Most mills have backlogs of four to six weeks.

Chicago—Plate sales and specifications are well sustained, principally as a result of heavy requirements of structural fabricators and freight car builders. Tank builders also are fairly well booked for the next 60 days. Heavy plates now are experiencing much of the activity which previously was confined largely to the lighter gages.

New York—Distribution of about 18,000 tons of plates among eastern and Pittsburgh mills for 3000 tank cars for the Union Tank Car Co. features the plate market. A substantial tonnage of shapes and other steel is also required. Steel for miscellaneous ship work has been placed, driven in before the expiration of protection July 31. No award has been made on two passenger-cargo boats for the American-South African Line, on which Sun Shipbuilding Co. is low. Steel for these will not command the lower price.

Philadelphia—Substantial buying for ship work and railroad equipment featured business in the plate market the past week, with general buying slowing up due to seasonal influences. Railroad business included several hundred tons of plates for car repairs for the Pennsylvania. The extent of this railroad's program is unknown, but it is believed substantial operations will be carried on the remainder of the year. Sun Shipbuilding & Dry Dock Co., Chester, Pa., has closed on one tanker for the Texas Co., New York, noted in last week's issue as having placed at least one such boat with an unnamed builder. Indications are that a second tanker will be awarded to the Sun yard later by this company. These tankers will require about 4500 tons of hull steel each. Eastern yards are also figuring on two additional tankers for the Gulf Refining Co., New York. The Sun yard recently completed two tankers for this company, it is understood. Outstanding among tank awards are ten for the Atlantic Refining Co., this city, involving approximately 1200 tons of plates. Fabrication will be done by the Chicago Bridge & Iron Works, Chicago, the tanks to be erected at various points. The new prices are being firmly maintained at 2.00c, Coatesville, Pa., or 2.09c, Philadelphia.

Birmingham, Ala.—Demand for plate is active and operation of mills day and night is necessary. Much plate is going into the large-sized pipe for the local industrial water project and other requirements are heavy.

San Francisco—Plate bookings are confined to unimportant tonnages.

ORE and Coal Handling MACHINERY.....

SHIP UNLOADERS, STOCKING AND RE-HANDLING BRIDGES, GANTRY CRANES, CAR DUMPERS, ORE TRANSFER CARS

Creative engineering of the highest order is reflected in Wellman installations the world over.

If you are having difficulty in reaching your objective, viz.—bigger output, lower costs, or both—contact Wellman engineers for their recommendation.

WELLMAN PRODUCTS INCLUDE:

Steel Mill Equipment . . . Charging Machines, Cars and Boxes . . . Manipulators . . . Coal and Ore Handling Bridges . . . Gantry Cranes . . . Special Cranes . . . Clamshell Buckets . . . Car Dumpers, all types . . . Blast Furnace Skip Hoists . . . Gas Producers, Flues . . . Gas Reversing Valves . . . Mining Machinery . . . Safety Stops for Traveling Structures . . . Welded Steel Construction . . . Castings and Machine Work to customers' drawings.

THE WELLMAN ENGINEERING CO.
ENGINEERS CONSTRUCTORS MANUFACTURERS
CLEVELAND, OHIO
WELLMAN
BIRMINGHAM • NEW YORK • MEXICO CITY

Bids have just been opened on 3500 tons of 10-foot 3-inch welded steel pipe for the metropolitan water district, Los Angeles, with alternate bids on precast reinforced concrete pipe.

Seattle—Light gages are moving actively in small lots for general overhaul and repair jobs. While no large projects are up for figures, several important tonnages are maturing, including water system extensions and pulp plant enlargements.

Contracts Placed

2180 tons, ten 132-foot all-welded steel cargo barges, for Jones & Laughlin Steel Corp., Pittsburgh, to own shops.

1800 tons, 117 glass-lined storage tanks for Schlitz Brewing Co., Milwaukee, to A. O. Smith Corp., Milwaukee.

1200 tons, 10 tanks at various points for Atlantic Refining Co., Philadelphia; fabrication awarded to Chicago Bridge & Iron Works, Chicago.

390 tons, 48-inch pipe line, Detroit Edison Co., Detroit, to Semet-Solvay Engineering Co., Syracuse, N. Y.

260 tons, 400,000-gallon tank for United States government, Milwaukee, to Tippett & Wood, Phillipsburg, N. J.

Unstated tonnage, car repairs, Pennsylvania railroad, Philadelphia, placed with Pittsburgh and eastern mills.

Contracts Pending

8000 tons, estimated, two tankers for Gulf Refining Co., New York, construction bids being asked.

3500 tons, 10-foot 3-inch welded steel pipe, metropolitan water district, Los Angeles; bids opened.

450 tons, water stops, metropolitan water district, Los Angeles; bids opened.

200 tons, water pipe extension and elevated steel tank, Salem, Oreg.; Pittsburgh-Des Moines Boiler & Tank Works, San Francisco, and King Bros., Portland, Oreg., low.

Sheets

Sheet Prices, Page 68

Pittsburgh — All specifications against second-quarter prices have been terminated by producing mills, although shipments against this type of business likely will not be completed before Sept. 1. Meanwhile, spot buying is fairly steady, with the result that July orders were almost up to the June aggregate. No report of deviation from the official third-quarter market is reported on new business in sheets.

Cleveland—New sheet tonnage has held remarkably through July, with the result that shipments during the past month excelled those of June. Enameled material for household utilities and the like are in heaviest demand. While automobile consumption has declined, requirements from other miscellaneous sources have more than made up for it.

New York—Sheet demand is brisk with most mills sold ahead. A notable exception is a large mid-Western producer which is now actively soliciting business for certain of its plants active after several weeks strike suspension. It offers shipments on hot-finished in a week to 10 days and on cold-finished in three weeks. Most other producers offer three to four weeks on hot-rolled and five to six weeks on cold-rolled.

Chicago—Backlogs and indicated volume of new business, are sufficient to assure active sheet mill operations during August. Some slowing has appeared in buying recently, largely due to approaching changes in automotive models. Motor car builders are expected to re-enter the market with heavier orders around the middle of August. Miscellaneous sheet users have experienced less than the usual mid-summer decline. Occasional rush orders are appearing from farm implement manufacturers, but operations of this industry still are moderating.

Cincinnati—Sheet mills continue operations close to the best schedules of the year. Buying is widely diver-

SPECIAL SEAMLESS SHELLS AND SHAPES
DEEP DRAWN TANKS, BOTTLES, ETC.
Is Our Specialty
This Seamless Drawn Tank is
A Crosby Accomplishment

Stamping Specialists Since 1896
An Experience You Should Not Overlook
Send Us Your Next Specification
THE CROSBY COMPANY
BUFFALO, N. Y.
NEW YORK — CHICAGO — PHILADELPHIA — DETROIT — CLEVELAND

sified and for early shipment. Tonnage for automobiles is satisfactory and some specifications now are for preliminary work on new models.

Philadelphia—With new sheet tonnage tapering, some improvement in deliveries is expected over the next fortnight. Meanwhile the situation continues tight, with little available under three to four weeks on hot-rolled sheets and five to six weeks on cold-finished sheets. Recent buying includes 250 tons of hot-rolled sheets for the federal industries board, Northeast penitentiary, Lewisburg, Pa., distributed among the Bethlehem Steel Co., Bethlehem, Pa., Superior Steel Corp., Pittsburgh, and Youngstown Sheet & Tube Co., Youngstown, O. Some further automotive tonnage is being placed with eastern mills.

St. Louis—Producers and distributors of steel sheets report shipments holding at the high levels of recent weeks, but some tapering in new purchasing. Demand is well diversified from users of all descriptions of sheets. A feature in business is broadened building activity.

DESIGN—Engineered by experienced men, with many years of training in meeting the problems of GEAR manufacturing.

MATERIALS—Selected after a most careful study of the requirements of job to be done.

PLANT—Manufactured in a most completely equipped and versatile GEAR producing plant.

TYPE OF GEAR—We make all types of gears—and have had almost 50 years' experience in GEAR cutting and generating.

TESTING—Our testing department is competently manned, with the latest testing devices.

RESULT—Smooth meshing gears—yet very powerful—minimizing your production problem.

D. O. JAMES MANUFACTURING COMPANY
1120 W. MONROE STREET • CHICAGO, ILLINOIS
ESTABLISHED 1888

Transportation

Track Material Prices, Page 69

Award of 3500 tank cars by the Union Tank Car Co. last week brought domestic freight car awards in July up to 7229 cars, which compares with the average for the first six months of this year of 4688 cars. Final returns for the month may reveal a slightly higher total for July. The outlook for August is less promising, as active inquiry is not large. Possibly largest at this time is the 400-car inquiry for the Wabash. The Pennsylvania railroad is making some car repairs, for which several hundred tons of steel were placed last week. The Union Tank Car Co. cars will require about 18,000 tons of plates as well as some shapes and other metal.

New York Central is tentatively considering purchase of a number of locomotives and may buy as many as 50.

Union Pacific has directed General Electric company to build a new type of steam locomotive which has been under development the past several years. It will consist of two 2500-horsepower units, each electrically driven and receiving its power from a steam turbine. The Soo line has ordered 3000 tons of rails from three producers. Spot buying of fastenings holds to its recent average of more than 1000 tons weekly.

Plain material requirements amounting to more than 15,000 tons, for 1000 steel box cars for the Norfolk & Western railway, are being initially allocated.

Cars Orders Placed

Union Tank Car Co., Chicago, 3500 tank cars, to American Car & Foundry Co., New York.

Locomotives Placed

Union Pacific, steam turbine electric locomotive, consisting of two 2500-horsepower self-contained units, to General Electric Co., Schenectady, N. Y.

Rail Orders Placed

Minneapolis, St. Paul & Sault Ste. Marie, 3000 tons divided among Bethlehem Steel Co., Carnegie-Illinois Steel Corp. and Inland Steel Co.

Buses Booked

Boston Elevated Railway, Boston, 20 trackless trolleys, to Pullman-Standard Car Mfg. Co., Chicago.

Standard Steel Spring Co., Coraopolis, Pa., has declared a dividend of 25 cents a share, payable July 3 to June 27 record.

Pipe

Pipe Prices, Page 69

Pittsburgh — Prospect is favorable for early placing of an attractive line pipe order for installation in New York state, as well as some lines of shorter length in the West, which have been under discussion for sometime. One favorable factor affecting the outlook for line pipe is in the growing scarcity of used pipe. Pipe mill operations in this district, which advanced to about 55-60 per cent of capacity last week, are now strongly supported by orders for mechanical tubing, boiler tubes and specialty items, although a fair call continues in standard butt and lap weld sizes.

Cleveland—Mills here are running at capacity. Little trouble has been noticed in meeting demand except for electric welded material, upon which two or three weeks is the best delivery available. Standard pipe for new buildings and repair work brings the largest tonnage. Jobbers' stocks are moving well, as shown by demand for immediate shipment.

Chicago — Backlogs of cast iron pipe producers are declining as a result of steady shipments and a lighter volume of new business. Fairly heavy deliveries are in prospect for most of the remainder of this quarter, however. Most new inquiries involve only small lots. Chicago is in the market for 15,000 feet of 2-inch steel pipe.

New York — Much greater activity is reflected in cast iron pipe. Lettings during the past week aggregated about 1500 tons, including one lot of 750 tons. It is expected that the department of purchase, New York, will take bids shortly on requirements for various borough yards aggregating several thousand tons. The market in general is unchanged but concessions occasionally make their appearance.

San Francisco—Demand for cast iron pipe is light and awards and inquiries involve less than carload lots. Bountiful, Utah, is expected to be in the market soon for 230 tons of 4 to 12-inch cast iron pipe.

Seattle — Little improvement is noted in the cast iron pipe market. Few important projects are up and turnover is mostly from stock.

Cast Pipe Placed

750 tons, 4 and 6-inch, to United States Pipe & Foundry Co., Burlington, N. J., for Public Service Corp. of New Jersey, Newark, N. J.

500 tons, Allentown, Pa., to Donaldson Iron Co., Emaus, Pa.

Steel Pipe Placed

3300 tons., 60 miles, 10¾-inch gas pipe, Penn-York Natural Gas Co., Buffalo, to Republic Steel Corp., Cleveland; reported last week as unstated tonnage.

Cast Pipe Pending

3472 tons, specification 2045, Los Angeles, 160,000 feet six-inch and 80,-feet 8-inch; bids Aug. 3.

325 tons, 4, 6 and 8-inch for Union Gap, Wash.; bids in.

230 tons, 4 to 12-inch, Bountiful, Utah; bids soon.

200 tons, Random Lake, Wis.; James B. Clow & Sons, Chicago, low bidder.

180 tons, 16-inch, Rainer avenue, Seattle; bids in.

120 tons, Tigerton, Wis.; bids close Aug. 7.

100 tons, 30-inch class B, Freeport, N. Y.

100 tons, filtration plant, Neenah, Wis.; American Cast Iron Pipe Co., Birmingham, Ala., low bidder.

Unstated tonnage, 4000 feet of 6-inch centrifugal pipe; bids Aug. 1.

Steel Pipe Pending

15,000 feet, 2-inch standard pipe, Chicago; bids to commissioner of public works, Aug. 10.

1500 tons, Stanolind Pipe Line Co., subsidiary Standard Oil Co. (Indiana), Chicago, 30 miles, 6-inch oil line, to Osage Construction Co., Tulsa, Okla.; construction starts

COLONIAL

announces:

A COMPLETE LINE OF STANDARD POPULARLY PRICED BROACHING MACHINERY . . . . . A STANDARD MACHINE FOR EVERY BROACHING NEED . . . ELEVEN BASIC TYPES, FORTY-NINE MODELS . . WRITE

COLONIAL BROACH COMPANY

147 Jos. Campau DETROIT

near Hutchinson, Kans.; Lindeweld acetylene welding method.

Strip Steel

Strip Prices, Page 69

Pittsburgh—A sold-out condition continues in practically all grades of strip steel, but is especially noticeable in cold-rolled. Many buyers are finding difficulty in obtaining deliveries and consequently have been led to enter heavier specifications, so that their fall inventories will be larger than at present. The market is firmly quoted at 2.60c, Pittsburgh or Cleveland, base on cold-rolled strip steel and 1.95c, base, on hot-rolled strip, the latter being adequately tested on advance automotive buying for 1937 models.

Chicago — July bookings of both hot and cold-rolled strip were heavier than expected, giving an improved outlook to August shipments. Automotive orders still are light and are not expected to increase materially until the middle of this month. In the meantime the absence of a full seasonal recession in needs of miscellaneous users is helping to sustain business. Prices are steady.

Cleveland — Consumer stocks are below normal, shown by insistence upon immediate shipments. This has resulted in placing of larger orders than usual, because of the feeling that delivery conditions will become more severe when automotive and farm equipment manufacturers come back in the market.

New York—Narrow strip tonnage is more active than a fortnight ago, when there was a lag. Automotive accessory requirements are said to be chiefly responsible for this improvement.

LOGAN COIL TURNOVER with drive below and in center. This arrangement is usually preferred where possible to locate drive in pit. Drive may be above floor on one side if pit space not available. Logan Turnovers upend or down-tilt. May be designed to receive coils from end of machine or from side and deliver in like manner.

SMOOTH ..as Silk..

ALL Logan Coil Turnovers are powered with the famous screw and cross-head drive. Massive rocker arms, doubled-keyed to the pivot shaft at one end and with the other end slotted to engage heavy duty ball-bearings, on the cross-head, rotate the carriage smoothly, silently, powerfully. Illustration in circle shows drive mechanism. Have you received your copy of Bulletin No. 107 Write, on your letterhead, to LOGAN CO., Inc., 535 Buchanan St., Louisville, Ky.

Logan Conveyors LOUISVILLE

Wire

Wire Prices, Page 69

Pittsburgh — Considerably more forward buying of merchant wire products is in evidence and several cases have been cited recently where smaller jobbers have been taking fullest advantage of the present market on wire nails. In one such case, purchase of its requirements through next March at the present market, seems motivated by a belief that nail prices are now at their lowest for the coming six to nine months and that an advance is entirely likely. Bolt and nut makers, spring manufacturers and others are enlivening the manufacturing wire market, with the result that the present condition of wire products reflects the busiest summer period in six years.

Cleveland — Agricultural demand is holding up well, but there has been a noticeable decline in requirements of automobile partsmakers. Shipments during July were equal to or better than those in June but new business fell a little behind June.

New York—Weakness in wire nails continues with 1.90c, Pittsburgh, $4 under the official market, easily available in some sections of the east.

Chicago — Wire sales and specifications hold at an unusually high level despite a moderate letdown recently. Diversified call for manufacturers' wire from miscellaneous users continues heavy for this season. Conflicting reports are received regarding ultimate effects of the drought. There is no comparison with the disastrous situation of two years ago, however, and wire producers look for no abrupt drop in sales of merchant products in farm areas.

Cold Finished

Cold Finished Prices, Page 69

Pittsburgh—Reduction of $1 a ton on cold-finished steel bars for Detroit and eastern Michigan delivery a week ago has not reacted in quot-

able change at other delivered points, although antagonism by certain cold-drawn consumers persists at such border line points as Toledo, O. The present cold-drawn market shows definite signs of remaining a sellers' market for some time as many producers' capacities are sold out for mid-September delivery at the earliest. Going prices are based on the Pittsburgh market of 2.25c, base.

Shapes

Structural Shape Prices, Page 68

New York—Fair activity continues but some fabricating shops have worked off considerable business. Much tonnage in the aggregate is pending. New inquiries call for only some 3000 to 4000 tons of steel. New quotations on fabricated work are based on 2.00c base, Bethlehem, Pa., for plain structural material. The old 1.90c price in connection with identified tonnages expired July 31.

Although bookings of structural shapes in June were not as large as in February or May, shipments were the largest for any month since August, 1931, according to the American Institute of Steel Construction.

Pittsburgh—Since Aug. 1 producers have withdrawn the extension of 1.80c, base, Pittsburgh, for coverage on specific building jobs and the market has firmed up universally to the third quarter price of 1.80c. Structural contracts and inquiries have been less numerous but include the award to J. Lee Plummer, Sewickley, Pa., at $217,958 on two bridges in Crawford county, Pennsylvania, taking 767 tons. American Bridge Co. has taken a 600-ton plant extension for the Carbide & Carbon Chemical Co., Whiting, Ind.

Cleveland—Mills are running at capacity with backlogs of four to five weeks. Some fabricating shops report enough business for at least three months. With the time limit expiring on identified jobs last week, fairly good tonnage was driven in. Chief among them was a bridge at Ironton, O., let to the Fort Pitt Bridge Works, Pittsburgh.

Chicago—Mills are rushed in an attempt to meet demand for wide flange structural sections, and delays in delivery are common. Many small orders and extra specifications entail congestion in finishing departments. Fabricated steel awards and inquiries remain in fair volume, with the latter made up principally of bridges, river locks and dams. About 10,000 tons of shapes and piling are pending for two locks and dams on which bids closed recently. New bridge inquiries involve 11,000 tons.

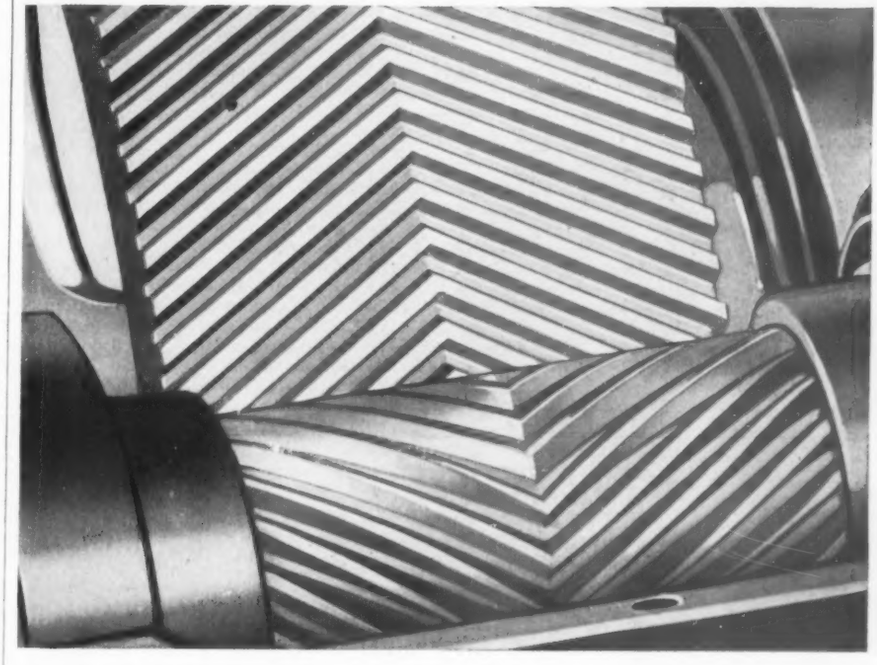
Philadelphia—The end of the 30-day protection period on identified contracts July 30 witnessed placing of a number of jobs throughout the East, although relatively few in the immediate district. New inquiry is less active, but some important private work is being quietly figured. Shapes are firm at 2.00c, Bethlehem, Pa., or 2.11½c, Philadelphia.

Birmingham, Ala.—All fabricating shops are operating on regular schedules with much work being

Shape Awards Compared

	Tons
Week ended July 31	28,282
Week ended July 24	17,577
Week ended July 17	23,216
This week, 1935	14,400
Weekly average, 1935	17,081
Weekly average, 1936	22,350
Weekly average, June	25,036
Total to date, 1935	462,627
Total to date, 1936	692,835

SMOOTH POWER



● Where speeds are high . . . where smooth operation is required . . . where quietness is a factor, Horsburgh & Scott Herringbone Gears and Speed Reducers are ideal. Gears are Sykes type . . . accurate . . . and with a continuous, double helical tooth . . . giving increased bearing surface . . . greater resistance to wear. They provide the most economical . . . the smoothest known means of transmitting power between parallel shafts.

Send for our complete 448 page Catalog.

THE HORSBURGH & SCOTT CO.

GEARS AND SPEED REDUCERS

5112 HAMILTON AVENUE, CLEVELAND, OHIO, U. S. A.

turned out. New business is frequent and warrant for steady production is anticipated for several weeks. Chicago Bridge & Iron Co. and Ingalls Iron Works Co. will not complete large sized steel pipe work until end of year.

San Francisco—Interest is centered around opening of bids Aug. 24 for the post office and court house, Los Angeles, involving 20,000 tons and the new 16-story federal building, requiring close to 10,000 tons. Bethlehem Steel Co. secured award for the livestock building, 990 tons. Bids have just been opened on 849 tons for seven bridges in Los Angeles for the United States engineer office.

Seattle—New projects are developing rapidly, industrial requirements offsetting decline in public works jobs. Local interest is centered in the expected immediate award of 900 tons for the Soundview Pulp Co. addition at Everett, Wash., and 400 tons for the St. Regis Pulp Co. at Tacoma, Wash. The week's awards included 240 tons for the Orting, Wash., county bridge, to Star Iron Works, Tacoma. Reclamation bureau will open bids at Denver Aug. 4 for five 17 x 37 feet radial gates for the spillway, Yakima, Wash., project. Everett, Wash., plans a $60,000 overcrossing.

WYCKOFF

Spells complete satisfaction in

COLD DRAWN STEELS

When WYCKOFF is written into any specification for Cold Drawn Steel, it is a guarantee of 100 per cent satisfaction whether your problem involves machinability . . . finish . . . straightness . . . concentricity or any combination of these desired qualities. Let us serve you.

WYCKOFF DRAWN STEEL COMPANY

General Offices: First National Bank Bldg., Pittsburgh, Pa.
Mills at Ambridge, Pa. and Chicago, Ill.
Manufacturers of Carbon and Alloy Steels
Turned and Polished Shafting Turned and Ground Shafting

Shape Contracts Placed

2725 tons, dam No. 21, Quincy, Ill., to American Bridge Co., Pittsburgh.

2000 tons, piling, dam, Lynxville, Wis., to Inland Steel Co., Chicago.

1700 tons, apartment, 19 East Seventy-second street, New York, to Harris Structural Steel Co., New York, through Hegeman-Harris Co., New York.

1650 tons, penitentiary building, Jefferson City, Mo., to Kansas City Structural Steel Co., Kansas City, Mo.

1500 tons, bridge, Riley county, Kansas, to Kansas City Structural Steel Co., Kansas City, Mo.

1100 tons, Libbey Owens Ford Glass Co., Toledo, O., plant extension, to Bethlehem Steel Co., Bethlehem, Pa.; Bently & Sons, general contractor.

1080 tons, senior high school, Providence, R. I., to Bethlehem Fabricators Inc., Bethlehem, Pa.

1000 tons, Hickory creek bridge, Joliet, Ill., to Bethlehem Steel Co., Bethlehem, Pa.

1000 tons, bridge, Albuquerque, N. Mex., to Missouri Valley Bridge & Iron Co., Leavenworth, Kans.

1000 tons, crusher plant, Climax Molybdenum Co., Climax, Colo., to Kansas City Structural Steel Co., Kansas City, Mo.

1000 tons, plant addition, Union Bag & Paper Corp., Savannah, Ga., to Virginia Bridge Co., Roanoke, Va., through Merritt-Chapman & Scott Corp., New York.

990 tons, livestock building, San Francisco, to Bethlehem Steel Co., Bethlehem, Pa.

820 tons, Shervier hospital addition, Bronx, New York, to Harris Structural Steel Co., New York.

615 tons, state highway bridge, Punxsutawney, Pa., to Bethlehem Steel Co., Bethlehem, Pa., through Whitaker & Diehl Co., Harrisburg, Pa., general contractor, in July 3 letting.

610 tons, three highway bridges for United States government, Los Angeles, to Bethlehem Steel Co., Bethlehem, Pa.

600 tons, malt house, Schlitz Brewing Co., Milwaukee, to Worden-Allen Co., Milwaukee.

600 tons, extension to building, Carbide & Carbon Chemical Co., Whiting, Ind., to American Bridge Co., Pittsburgh.

550 tons, bridge, Virginia state highway department, Clifton Forge, Va., through Hoffheimer Contracting Co. to Bethlehem Steel Co., Bethlehem, Pa.

550 tons, bridges, Des Moines, Iowa, to Des Moines Steel Co., Des Moines, Iowa.

530 tons, state highway bridge, Ironton, O., to Fort Pitt Bridge Works, Pittsburgh.

500 tons, state highway bridge, Kingston, Pa., to Bethlehem Steel Co., Bethlehem, Pa.

450 tons, Trans-Lux theatre and office building, Washington, to Harris Structural Steel Co., New York.

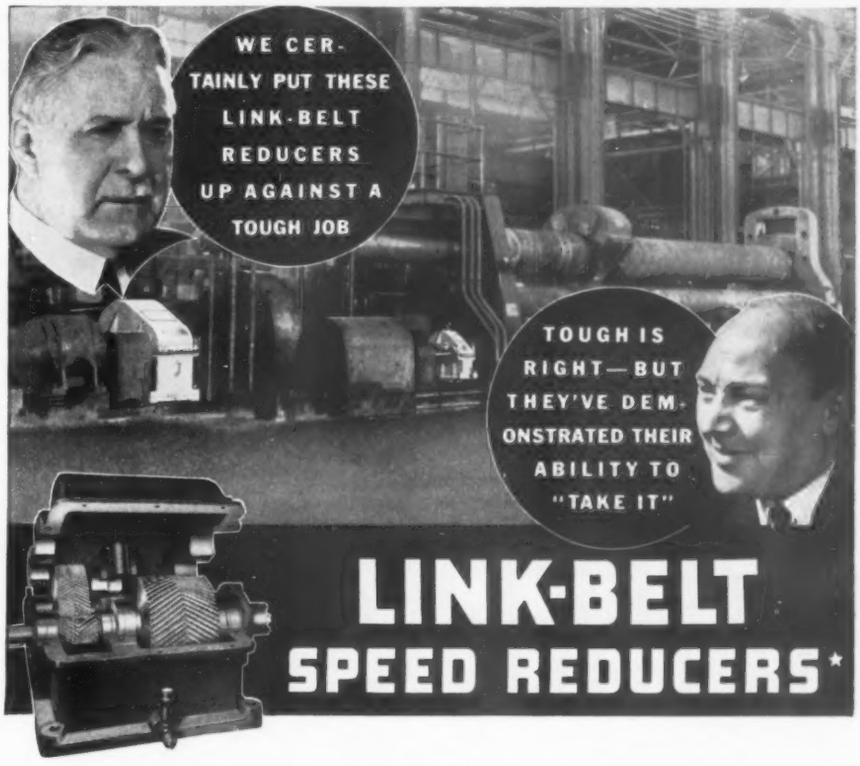
450 tons, Chicago river lock, Chicago, to Bethlehem Steel Co., Bethlehem, Pa.

430 tons, state highway bridge, Orleans.

county, New York, to Fort Pitt Bridge Works, Pittsburgh.
360 tons, curbing angles for New York, to Egleston Bros. & Co., Long Island City, N. Y.
350 tons, lime plant, Annville, Pa., for Millard Co., to unstated fabricator.
340 tons, Maxwell school building, Syracuse university, Syracuse, N. Y., to Syracuse Engineering Co., Syracuse.
290 tons, bridge, Swanton, Vt., for Missiquoi bay bridge commission, to Bethlehem Steel Co., Bethlehem, Pa.
290 tons, garage and produce building, Washington, to Rosslyn Steel Co., Washington.
285 tons, warehouse on pier No. 7, Baltimore, for Canton Co., to Dietrich Bros. Co., Baltimore.
260 tons, grand stand, St. Vincent's college, Latrobe, Pa., to Pittsburgh-Des Moines Steel Co., Pittsburgh.
240 tons, county bridge, Orting, Wash., to Star Iron Works, Tacoma, Wash.; Teufel & Carlson, Seattle, general contractor.
230 tons, state highway bridge, Bantley county, Georgia, through Hardaway Construction Co., to Bethlehem Steel Co., Bethlehem, Pa.
230 tons, bridge, Milo, Me., to Harris Structural Steel Co., New York.
206 tons, bridge, Laramie, Wyo., to Midwest Steel & Iron Co., Denver.
200 tons, Lockport Chemical Co. building, Jersey City, N. J., to Oltmer Iron Works, Jersey City.
200 tons, assembly plant, Chevrolet Motor Co., Tarrytown, N. Y., to Jones & Laughlin Steel Corp., Pittsburgh, through J. A. Utley, Detroit.
185 tons, state highway bridge, Strassburg, Va., to Bethlehem Fabricators Inc., Bethlehem, Pa.
180 tons, warehouse, Detroit, to R. C. Mahon Co., Detroit.
166 tons, state highway bridge, Crayton, Pa., to Bethlehem Steel Co., Bethlehem, Pa.
160 tons, bridge, Lake county, Illinois, to Gage Structural Steel Co., Chicago.
145 tons, state highway bridge, Steuben county, New York, to Wisconsin Bridge & Iron Co., Milwaukee.
140 tons, bridge, Bowdoinham, Me., to American Bridge Co., Pittsburgh, through Hector J. Cyr, Waterville, Me.
135 tons, Triborough bridge contract No. 73, Long Island City, N. Y., to Jones & Laughlin Steel Corp., Pittsburgh.
130 tons, building, Linde Air Products Co., Chester, Pa., to Bethlehem Fabricators Inc., Bethlehem, Pa.
130 tons, state highway bridges, Jenkins county, Georgia, to Bethlehem Fabricators Inc., Bethlehem, Pa.
130 tons, substructure, Ashland avenue bridge, Chicago, to Gage Structural Steel Co., Chicago.
125 tons, H-steel piling, two state bridge projects, Washington, to Bethlehem Steel Co., Seattle.
125 tons, addition to plant of Western Engineering Co., Los Angeles, to Consolidated Steel Corp., Los Angeles.
100 tons, bridge, Douglas county, Illinois, to Mississippi Valley Structural Steel Co., Decatur, Ill.
100 tons, buildings, specification 7891, Lualualei, Oahu, T. H., to unnamed interest.

Shape Contracts Pending

20,000 tons, post office and court house, Los Angeles; bids Aug. 24.
10,000 tons, Federal building, Los Angeles; bids Aug. 24.
5222 tons, including 3970 tons of piling, LaGrange lock and dam, Beardstown, Ill.; Kansas City Bridge Co., Kansas City, Mo., low for general contract.
4089 tons, state bridges, Mississippi.
2100 tons, state bridges, Louisiana.
2000 tons, garage, department of sanitation, Fifty-sixth street and Twelfth avenue, New York; bids Aug. 10.
1500 tons, armory building, United States military academy, West Point, N. Y.
1500 tons, field house and gymnasium, Purdue university, Lafayette, Ind.
1000 tons, lower level approach to Triboro bridge, New York.
1000 tons, bridge, Biron, Wis.
950 tons, United States government bridge, Los Angeles.
900 tons, police and court building, Washington.
767 tons, plate girder bridge and through truss bridge, Crawford county, Pennsylvania; J. Lee Plummer, Sewickley, Pa., low on July 24 opening.
700 tons, apartment building, East Sixty-ninth street, New York.
650 tons, bridge, Memphis, Tenn.
525 tons, Nisqually river state bridge, Washington; General Construction Co., Seattle, general contractor.
500 tons, St. Barnabas hospital addi-


WE CERTAINLY PUT THESE LINK-BELT REDUCERS UP AGAINST A TOUGH JOB
TOUGH IS RIGHT—BUT THEY'VE DEMONSTRATED THEIR ABILITY TO "TAKE IT"
LINK-BELT
SPEED REDUCERS*

★ One of the seven types of Link-Belt positive drives—the other six are illustrated below. Superintendents, plant engineers and others should have our book on the complete line of positive drives. They'll appreciate its value. Send for Binder No. 2100.

● Heavy duty machinery requires power transmission drives that will keep the wheels turning day-in and day-out to insure profitable returns. It's on just such installations that Link-Belt positive drives prove their outstanding superiority. Delivering power in a smooth, uniform flow to bend plates as thick as 3½ inches, calls for the utmost in dependability and efficiency, but it's just another job for Link-Belt Herringbone Gear Reducers — because they have everything that it takes.

Whatever the power transmission problem, Link-Belt can best supply the ideal solution, because only Link-Belt makes every type of positive drive. Consultation with a Link-Belt positive drive specialist involves no expense and entails no obligation.

Address LINK-BELT COMPANY, Philadelphia, Indianapolis, Chicago, Atlanta, San Francisco, Toronto, or any Offices located in Principal Cities.

5140

POSITIVE DRIVES *bring* POSITIVE PROFITS

tion, Newark, N. J.
400 tons, sheet piling, place, Grassy Lake dam, Upper Snake river project, Idaho; bids Aug. 7.
300 tons, government hospital, Talihina, Okla.
282 tons, Overland avenue bridge, United States engineer office, Los Angeles; bids Aug. 3.
285 tons, grade elimination underpass, Columbus, O.
250 tons, bus terminal, Fifty-first street and Seventh avenue, New York.
250 tons, office building for United States bureau of public roads, Denver.
250 tons, two bridges, Marathon county, Wisconsin; bids close Aug. 5.
237 tons, plate girder overpass, McKean county, Pennsylvania; bids to state highway department, Harrisburg, Pa., Aug. 14. Included, 70 tons of plain steel bars.
230 tons, building for carborundum Co., Niagara Falls, N. Y.
200 tons, postoffice, Gary, Ind.
200 tons, Pierce county, Washington, Orting bridge; Portland Dredging Co., Portland, Oreg., general contractor.
150 tons, Sheffield Farms plant, Yonkers, N. Y.
146 tons, plate girder overpass, Armstrong county, Pennsylvania; bids to state highway department, Harrisburg, Pa., Aug. 14.
145 tons, bridge, Tigerton, Wis.; bids closed July 31.
100 tons, highway work in Rio Grande and in Otero county, Colorado; bids Aug. 4.
Unstated tonnage, five radial gates for Yakima, Wash., spillway; bids to reclamation bureau, Denver, Aug. 4.

Behind the Scenes with STEEL

Show Must Go On

NO DOUBT many of you have been impressed with the striking changes which have taken place in industrial expositions and shows during the past decade. It used to be that a manufacturer would buy so many square feet in a show, scatter a table, a few chairs, a coatrack, a drinking fountain, a grass rug and several piles of the company's literature around the booth, and consider this adequate representation.

Now, all has changed. Brilliant lighting, large colored transparencies, moving pictures, miniature working models of equipment, photomurals and other devices to attract attention of passersby are becoming commonplace. Specialists in exhibition technique are finding good business in developing booths for all the large industrial shows.

The trend to the spectacular in displays is notably emphasized in the industrial section of the Great Lakes exposition in Cleveland this summer. Many exhibitors there will get a good break this fall, with the exposition closing Oct. 4 and the National Metal exposition opening Oct. 19 in the same hall.

Bill Gardner has an interesting approach to the subject of convention exhibits in his article on Page 38.

* * *

Wizards at Work

ENGINEERS and designers at Westinghouse have been burning the old midnight oil, apparently, if you can judge from the sheaf of announcements recently broadcast by the company's technical press service.

In one fell swoop, Westinghouse gives you as follows: Matched set of three percolators, ultramodern urn set, two new waffle irons, matched sandwich grill set, matched sandwich grills, toaster tray, matched design toasters, coffee maker, food crafter, four warming pads, and two electric percolators.

Equipped with this line of devices, a person could whip up most any sort of a snack in a hurry, and with four warming pads to boot, could easily be the life of any party.

* * *

The Doctor Talks

THE good Dr. Longoria paused in his travels about the world the other day to tell New York ship news reporters he had received a paltry $6,000,000 for rights to his low-temperature welding processes (STEEL, June 22). As Mr. Brisbane might say, "Six million dollars is a lot of money."

Numerous inquiries are still being received by mail and wire at this office for information on his method of welding by "molecular shock." If you are as yet uninformed, call us up and we will have one of our editors tell all.

According to the *New York Times*, the Doctor said: "The purchase of the welding process does not mean that industry is to be altered at once. All of the purchases (see p. 40—Ed.) were made by concerns rich enough to buy them, so as to prevent the disturbance of industries based on ferrous and nonferrous materials. Where I have been paid in a handful of millions, industries, particularly the steel industry, are saving countless millions by not having to scrap an enormous amount of equipment. The replacement will be a slow one, and when it comes there will be a vast displacement of labor in almost all the heavy industries, and this labor will have to be provided for or taken care of in some fashion before it can come about."

INQUISITIVE CAMERA DEPT.—XI

A L. "MAC" MACBAIN turns his aquiline proboscis for a three-quarter view from his productive drawing board. Mac is chief of the STEEL copy and art service department, his habitat for the past 15 years.

* * *

Head Work

HEADLINE of the week: "For Every Industrial Walk of Life"—Central Iron & Steel Co. floor plate in July 27 issue.

—SHRDLU

Reinforcing

Reinforcing Bar Prices, Page 69

New York—Fair activity continues with much business pending. Prices, however, are not satisfactory and the situation is highly unstable. In some instances lately the 2.05c base, Pittsburgh, price on new billet rolled bars has been shaded by as much as $9 a ton.

Pittsburgh—More work is moving to jobbing outlets and the July market in aggregate was only a shade under the June total from the standpoint of both specifications and shipments. The price situation is a degree firmer, with the official market based on a 2.05c, Pittsburgh, quotation for new billet reinforcing bars in straight lengths as quoted by distributors, and rail steel bars, 1.90c, on the same basis.

Cleveland—New work of a private nature has been negligible. This is more strikingly brought out by the report of one mill which claims to have received 15 orders the last week or so, the total tonnage of which did not run over 150 tons. However, most mills are at capacity in an effort to clean up business which runs back to the middle of June in some cases. Billet steel bars are in greatest demand.

Philadelphia—Award of 325 tons for a high school at Lancaster, Pa., is the only project of note recently. New inquiry is light with the two federal housing projects, one at Camden, N. J., and the other here, comprising the principal pending tonnage. Bids were opened last week on a federal housing project at Wayne, Pa., but the bar requirements were small.

Chicago—Distributors are looking forward to 60 days more of heavy shipments. Backlogs of some interests are declining, but fairly heavy

Concrete Awards Compared

	Tons
Week ended July 31	3,862
Week ended July 24	15,431
Week ended July 17	8,641
This week, 1935	2,502
Weekly average, 1935	6,862
Weekly average, 1936	6,737
Weekly average, June	3,303
Total to date, 1935	136,818
Total to date, 1936	208,834

tonnages are included among pending and prospective orders. More than 2000 tons remains to be placed for the Chicago sanitary district, 1000 tons for the outer drive improvement and several thousand tons for river locks and dams. Awards include 300 tons for an industrial building here and 200 tons for Wisconsin road work. A substantial bar tonnage is pending for Illinois highways and bridges.

San Francisco—The market was active and 4401 tons were placed. Soule Steel Co. secured 600 tons for three school projects in Los Angeles, and Security Materials Co. 250 tons for two school projects in the same city. Bids open Aug. 24 for the new federal building, Los Angeles, requiring 6000 tons of rail steel bars. Great Lakes Construction Co. is low on general contract for the Federal jail, San Pedro, Calif., involving 1200 tons of rail steel bars. The United States Indian irrigation service, Los Angeles, has opened bids on 1500 tons.

Seattle—Business pending is of larger proportions than for several weeks. Turnover in small tonnages continues to supply mills with a considerable aggregate. Price structure is firm and steady. Northwest Steel Rolling Mills, Seattle, booked 245 tons for the Cowen park state bridge, and several sizable tonnages involved in state road projects, totaling about 1000 tons, are pending. Bids will be opened by reclamation bureau Aug. 7 at Ashton, Idaho, for the Grassy Lake dam project, calling for 316 tons reinforcing and 77 tons of steel piling, gates, etc.

Reinforcing Steel Awards

600 tons, plant building, Hiram Walker & Sons Inc., Peoria, Ill., to Laclede Steel Co., St. Louis.
350 tons, Queensboro bridge trusses, Fifty-ninth street, New York, to Capital Steel Co., Brooklyn, N. Y., and Concrete Steel Co., New York.
325 tons, high school, Lancaster, Pa., through David Warfel, contractor, Lancaster, to Concrete Steel Co., New York.
300 tons, plant building, Pheoll Mfg. Co., Chicago, to Concrete Engineering Co., Chicago.
280 tons, through procurement division, treasury department, New York, to W. Ames & Co., Jersey City, N. J.
250 tons, addition, high school, Van Nuys, Calif., to Soule Steel Co., Los Angeles.
245 tons, Cowen park state bridge, Seattle, to Northwest Steel Rolling Mills, Seattle.
201 tons, foundations, Livestock building, San Francisco, to Bethlehem Steel Co., Bethlehem, Pa.
200 tons, addition, Menlo avenue school, Los Angeles, to Soule Steel Co., Los Angeles.
200 tons, buildings, specification 7891 Lualualei, Oahu, T. H., to unnamed interest.
200 tons, state road work, Wisconsin, to Concrete Engineering Co., Chicago.
150 tons, alterations, Dayton Heights school, Los Angeles, to Soule Steel Co., Los Angeles.
150 tons, addition to Santa Monica boulevard school, Los Angeles, to Security Materials Co., Los Angeles.
150 tons, stadium, Jersey City, N. J., to Capital Steel Co., Brooklyn, N. Y.
106 tons, state bridge, route 6, section 7, New Jersey, to Igoe Bros., Newark, N. J., through J. P. Burns, Dumont, N. J.
100 tons, through procurement division, treasury department, New York, to Capital Steel Co., Brooklyn, N. Y.
100 tons, state road work, Luzerne county, Pennsylvania, through R. S. Shaffer, Nazareth, Pa., to Bethlehem Steel Co., Bethlehem, Pa.
100 tons, alterations, Vine street school, Los Angeles, to Security Materials Co., Los Angeles.
100 tons, gymnasium, high school, Bell, Calif., to Blue Diamond Corp., Los Angeles.

Reinforcing Steel Pending

6000 tons, rail steel, Federal building, Los Angeles; bids Aug. 24.
1500 tons, invitation 0285, United States Indian irrigation service, Los Angeles; bids opened.
1200 tons, Federal jail, San Pedro, Calif.; Great Lakes Construction Co., San Francisco, low on general contract.
1070 tons, air terminal building, San Francisco; Clinton Construction Co., San Francisco, low on general contract.

NEWPORT
Iron and Steel
SHEETS

THOSE who purchase iron and steel sheets by the single inflexible yardstick of quality can readily appreciate the exactness by which every step in Newport production . . . from the selection of raw materials to the finished product . . . is controlled by metallurgists, skilled operators and every mechanical and electrical device known to the industry to insure unvarying high quality, uniformity of analysis, structure, gauge and finish.

The many competitive advantages that the use of Iron and Steel Sheets by Newport give to your product are worthy of your serious consideration.

Hot and Cold Rolled Sheets. Newport Electrical Sheets. GOHI Pure Iron-Copper Alloy. Globe Brand Galvanized Sheets. GOHI Enameling Iron Sheets. Kentucky Copper-Bearing Sheets. Newport Long Terne Sheets. Newport Galvannealed Sheets. Newport De Luxe Metal Sheets.

The NEWPORT ROLLING MILL Company
NEWPORT, KY.
Since 1891 Producers of High Grade Iron and Steel Sheets

1000 tons, completion of outer drive improvement, Chicago; W. E. O'Neil Construction Co., Chicago, general contractor.

438 tons, LaGrange lock and dam, Beardstown, Ill.; Kansas City Bridge Co., Kansas City, Mo., low for general contract.

435 tons, state bridge, route 6, section 7, New Jersey; general contract to Maggi & Schoonover, Ridgewood, N. J.

400 tons, including steel piling, gates etc., Grassy Lake project, Idaho; bids to reclamation bureau, Ashton, Idaho, Aug. 7.

350 tons, state highway, route 23, section 10, New Jersey; general contract to Lafera-Grecco, Newark, N. J.

250 tons, department of sanitation garage, Fifty-sixth street and Twelfth avenue, New York; bids Aug. 10.

210 tons, department of sanitation work, Wards island, New York; general contract to Cauldwell-Wingate Co., New York.

200 tons, Pennsylvania railroad work, Newark, N. J.; general contract to J. Rich Steers Inc., New York.

149 tons, retaining wall, Aliso and Lyon streets, Los Angeles; bids Aug. 5.

136 tons, Squalicum creek span, Bellingham, Wash.; Croy Lich, Bellingham, general contractor.

125 tons, Nisqually state bridge, Washington; General Construction Co., Seattle, general contractor.

105 tons, highway work, Armstrong county, Pennsylvania; bids to state highway department, Harrisburg, Pa., Aug. 14.

100 tons, highway work, Rio Grande and Otero county, Colorado; bids Aug. 4.

Unstated tonnage, Coca Cola warehouse, New York.

Pig Iron

Pig Iron Prices, Page 70

Pittsburgh—Makers of barge castings, annealing boxes and steel mill rolls are active, with one large interest booking more business over the past two weeks than in any similar period in the last six years. Pig iron for these accounts is moving in steady volume, but the jobbing foundry trade has been unaffected by recent business improvement. Consequently, most foundry iron buying is in small lots, although basic is moving in slightly larger commitments.

Cleveland—Demand for pig iron has held up well through July, some melters reporting shipments ahead of or at least equal to those of June. This is attributed to the recent reversal in the buying procedure of many consumers. While formerly they had been carrying small stocks, buying from hand to mouth, the present tendency is to buy for stock because of uneasiness caused by strike possibilities and the general assurance of sustained demand. Recent shortage of scrap and increase in prices has done much to strengthen the price situation on pig iron.

Chicago—While July pig iron shipments were below the June rate, the decrease was smaller than usual. Automotive foundries are increasing operations in preparation for new model production and tend to offset lighter consumption by farm implement and tractor plants. Relatively heavy output of railroad equipment parts and heating and sanitary fixtures helps to bolster the total melt. New pig iron business is light, but sellers are comfortably fixed as to backlogs. The market is steady at $19.50, furnace, for No. 2 foundry and malleable.

New York — Pronounced dullness is noted in pig iron here, last week being the least active in some time. Contributing to restricted specifications is the continued molders' strike in Brooklyn, N. Y., which for three weeks has caused an almost complete suspension of operations in at least 12 iron foundries. Negotiations around the middle of last week, which promised a settlement, collapsed.

While there has been some agitation for revision in standard grading for silicon it now appears definite there wil be no change.

Buffalo—Current sales of pig iron and releases on orders are taking most of the production of merchant interests here and efforts to accumulate surpluses at storage points are meeting small success. Melt, especially in heating equipment foundries, is heavy for the season. Cooler weather has been followed by resumption of full production in some foundries which had reduced operations because of extreme heat. Ten blast furnaces are in production and another is said to be under preparation for a run which is not yet definitely scheduled.

Philadelphia — While confined almost entirely to small scattered lots, pig iron business in July was slightly better than in June for most sellers here. Prospects for August are less promising, although producers look for no marked decline. Prices are unchanged.

Cincinnati—Shipments of pig iron in July have shown a lag from June. However, the decline was moderate and total tonnage may prove the best for July in four or five years.

St. Louis—There has been a noticeable recession in the melt of pig iron, attributed generally to extreme heat and in some special cases to other seasonal causes. Preliminary estimates indicate that July shipments will about equal the June total, but will show a substantial gain over a year ago. Backlogs and new business are expected to hold the rate

First WE MAKE GOOD BOLTS . . . AND THEN WE PACKAGE THEM Carefully

• In fit, finish and tensile strength the bolts we make by the Kaufman Process, *patented*, our own plant development, maintain a standard of uniformity in quality that causes customers to specify them by name. Carefully packaged and labeled, shipments can be made out of stock from factory or your Distributor. There are 30 *million* Cleveland Cap Screws, Set Screws, Bolts and Nuts always available in a complete range of sizes and kinds for prompt shipment. Catalog D and Price List on request. THE CLEVELAND CAP SCREW COMPANY, 2935 E. 79th Street, Cleveland, Ohio.

Address the Factory or Our Nearest Warehouse:

CHICAGO, 726 W. Washington Blvd.
PHILADELPHIA . 12th & Olive Sts.
NEW YORK . . . . 47 Murray Street
LOS ANGELES . 1015 East 16th St.

CLEVELAND CAP SCREWS
SET SCREWS • BOLTS AND NUTS

through August and September about equal that of June and July.

Birmingham, Ala. — Shipment of pig iron during July was better than that of June but the market is not considered strong. Pipe makers, foundries and other consumers are buying in small to fairly good tonnages and in most instances specifying early delivery.

Scrap

Scrap Prices, Page 71

Pittsburgh—At least two downriver mills have bought No. 1 melting steel in limited quantity at $15 a ton, causing a 50-cent advance, continuing one of the most rapidly moving markets in recent years. Anxiety to cover shortages has forced some brokers here to bid up to $15.25 for supplies, which apparently are more difficult to obtain. A purchase of No. 2 steel by the leading interest here last week at $13.75 is without recent precedent and a downriver mill has also broken precedent by buying mixed borings and turnings for blast furnace use. Without exception, all quotable prices on scrap here have advanced over the past week from 50 cents to $1 a ton.

Cleveland — Quotations have strengthened, largely in the effort to attract hidden stores of scrap, if there be such. Some small lots have passed at the new prices which range upward 25 cents to $1 a ton. Mills are showing more disposition to buy but sellers are not eager to take on further commitments.

Chicago—Prices of most scrap grades, including heavy melting steel, have advanced 50 cents a ton or more. To a large degree the increases reflect active dealer bidding, though there has been heavier consumer demand for some grades. New orders from mills for heavy melting steel are absent but in covering old contracts dealers have bid more than $1 above the last price on a mill purchase.

Boston—Prices on iron and steel scrap again moved up impressively during the past week. Of greatest interest is the purchase of No. 1 heavy melting steel at $11.75, delivered Worcester, Mass. For some time past, due to lack of buying, the delivered price at Worcester had been quoted nominally at $10. Brokers have raised their buying prices 25 cents to $1 on a number of grades.

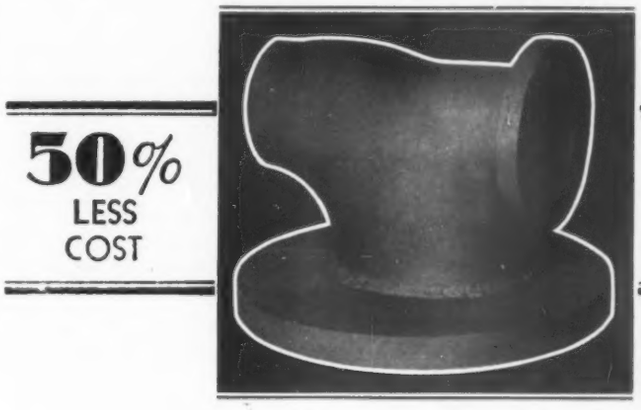
New York—Apparently a pronounced shortage of iron and steel scrap exists at numerous steel mills, both in eastern Pennsylvania and the Pittsburgh district. Brokers here have refused offers as high as $15.25, delivered, Pittsburgh, for No. 1 heavy melting steel. At least four mills in eastern Pennsylvania are hungry for scrap and in some cases the need seems desperate. No. 1 heavy melting steel now is quoted at $12.50, delivered, eastern Pennsylvania consuming points, but in some cases $13 is reported to have been paid for material for prompt shipment.

On scrap for domestic shipment, brokers are paying advanced prices for three grades. They have advanced rails for rolling by 50 cents and now are offering $10 to $10.50, f.o.b. cars, New York and Brooklyn; heavy breakable cast by 25 cents and now are quoting $9.75 to $10.25; machine shop turnings by 25 cents and now are quoting $4.25 to $4.50.

Philadelphia—Higher prices are noted on several grades, including notably No. 1 and No. 2 scrap. These grades are now holding at $12.50 to $13 and $11.50 to $12, delivered consuming point, respectively. The increases in steel reflect more the higher prices sellers are having to pay against contracts than any substantial volume of new business at the higher figures. On sales of No. 1 and No. 2 steels made recently at $12.50 and $11.50, respectively, dealers are now having to pay these prices for tonnage to cover these contracts. This is taken as indicating a $13 and $12 minimum on these grades in the near future, as the undertone of the market is strong. Other grades to be advanced are mixed yard cast, new compressed sheets, stove plate, axle turnings and No. 1 railroad wrought.

Buffalo—Demand for scrap is about to manifest itself, according to dealers. Mills bid $13 for No. 1 heavy melting steel, while dealers are believed to have offered 25 to 50 cents more for tonnage for immediate delivery on orders taken at $14. Scrap is slow in coming out, especially from Detroit, which is outbidding Buffalo for material that usually comes here. Upward revisions of prices are anticipated by dealers. Blast furnace scrap had sold in fair tonnage at $8.50, up 50 cents from recent contracts. Dealers have had to pay high prices to get No. 1 machinery cast for which they now ask $14 or more.

Detroit—For the second successive week, iron and steel scrap prices advanced about $1 a ton, placing No. 1 steel at $11.50 to $12; hydraulic compressed at $11.75 to $12.25, blast furnace, $7.50 to $8, and machine shop turnings, $7 to $7.50. No. 2 steel, forge flashings and loose sheet are likewise affected. The strong market has been caused by heavy buying by Buffalo mills, one of which has bought upward of 25,000 tons



THIS is the striking result of composite design as affected by Parish engineering service on a pressure fitting of cast steel that constantly failed under high pressures in service.

Produced of a stamped-and-welded design, this fitting not only split the cost and weight of its former style but successfully tested at 100 lbs. air pressure . . . Similar savings and betterments are likewise possible on *your* manufactured parts. Your blue-prints and specifications will permit this study.

PARISH PRESSED STEEL CO.

Specialists in difficult stamping design

Robeson & Weiser Sts. READING, PA.

Pacific Coast Rep.: F. Somers Peterson Co., 57 California St., San Francisco, Calif.

at various points in Michigan. There is also heavy demand from consumers located at Cleveland and Youngstown.

Cincinnati—Dealer activity is sending iron and steel scrap prices higher but without support, so far, from mill buying. Covering has already been done on contracts, so that the higher offers show dealers taking a long position. A recent upturn in demand from foundries is affecting some grades.

St. Louis—Iron and steel scrap is still featured by scarcity, but most particularly heavy melting steel and steel specialties. East side mills are inquiring for steel and a fair volume of sales has been made, one melter taking a large aggregate tonnage picked up in small lots.

Birmingham, Ala.—Though some readjustments have been made in quotations, iron and steel scrap continues slow. Heavy melting steel remains at $9 to $9.50 though some smaller consumers have been paying $12 on special, selected steel. The larger consumers of the district are not paying more than $9.

Seattle—Dealers are paying little attention to the export market. Japan is interested but unwilling to pay the higher ocean freights. This situation is considered temporary and the Orient is expected to be a factor within 60 days. Meanwhile domestic demand is active and is sustaining prices at $10 for No. 1 and $8 for No. 2. Supplies are not heavy at tidewater but ample for the demand. Mills and foundries are making purchases in proportion to larger consumption.

Warehouse

Warehouse Prices, Page 72

Cleveland—Recent price changes have been made in hot-rolled warehouse products, which will go into effect Aug. 3. Among those which have been increased 10 cents a hundred pounds are hoops and bands, structural shapes and plates, floor plates, and blue annealed sheets, 8 to 16 gage, 24 inches and wider. Special forging steel and blue annealed sheets, 3/16-inch, 24 to 48 inches wide, were lowered 10 cents a hundred pounds.

Chicago—Despite handicaps of the season, hot weather and the July 1 price advances, business last month showed little, if any, decrease from that of June. A definite letdown usually comes in July. Demand for large shapes continues and has developed into a scarcity of wide flange sections in warehouse stocks.

New York—Volume of business by iron and steel jobbers during July was little less than that of June. The higher prices are being firmly observed.

Philadelphia—Preliminary survey indicates that most warehouse distributors experienced a slightly better month in July than in June, contrary to the usual summer trend. The last few days, however, have seen a falling off in specifications. Prices are steady.

Detroit—Warehouse market on cold-drawn carbon steel bars has been reduced $1 a ton to 3.74c, base, for 400 to 9999-pound lots for delivery in the Detroit metropolitan territory. This follows similar action by producing mills ten days ago. All other warehouse steel prices are unchanged and demand in July was comparable with the heavy rate of activity during June.

St. Louis—In face of a second wave of intense heat, warehouse business has held up well. According to leading interests July volume will closely approximate that of June and run measurably above July totals since 1930. Buying is diversified, and on some items is stimulated by backward mill deliveries.

Seattle—July volume is ahead of June, out of stock items continuing in good demand. There is only occasional mill buying. Plates for boiler and fire box repairs are active and Alaska is taking considerable corrugated steel.

Summertime in Chicago...
Overlooking Lake Michigan, the great inland ocean—away from disturbing street noises—The Stevens offers you Chicago's finest hotel location—in the very center of things—on famous Michigan Boulevard.
We're old-fashioned at The Stevens, that is, when it comes to cheerful hospitality—but new in spirit. A friendly staff of employees interested in your comfort will make you enjoy every minute of your visit.
You'll be amazed at the many distinctive Stevens features at rates as low as two-fifty for one—four dollars for two.
Overnight parking, 50c
—garage with pickup and delivery, 75c.
STEVENS HOTEL
THE STEVENS
CHICAGO
WORLD'S LARGEST HOTEL

Iron Ore

Iron Ore Prices, Page 71

Cleveland — The extent to which the iron ore and coal traffic at Lake Erie ports has increased in the past year is shown by figures issued the Ore and Coal exchange. The figures cover the first 26 days of July.

During this period coal loaded onto vessels totaled 91,688 cars, while in the same period last year loadings were only 60,008 cars. Ore loaded to be forwarded to the furnaces was 44,078 cars against 31,930 cars in the same time a year ago.

Ferroalloys

Ferroalloy Prices, Page 70

Pittsburgh — Producers of ferromanganese report a noticeably steady volume of specifications, and incoming business in July was as good as that of June. The market holds at $75, duty paid, tidewater, or $80.13,

delivered, Pittsburgh, which is figured on an all-rail quotation based on Baltimore.

New York—Ferromanganese specifications this month may show some decline; however, shipping schedules for the first week of August are being sustained at the July rate. The movement in July proved fully comparable with that of June, which in turn was close to, if not on a parity with shipments in May, the best month up to that time.

Bolts, Nuts and Rivets

Bolt, Nut, Rivet Prices, Page 69

July business in bolts, nuts and rivets compared favorably with the heavy June volume and was the best for July in several years. Active engagement of railroad car builders assures relatively good demand from that source through this quarter. Consumption by tractor and implement builders continues brisk for this period and has not reflected effects of dry weather in farming districts. Rivet demand from structural fabricators is substantially ahead of the rate the past several years.

Semifinished

Semifinished Prices, Page 69

Integrated steel producers at Pittsburgh have had no opportunity, as had been expected earlier, to replenish their stocks of semifinished steel. Remarkably heavy demand from their own finishing mills has caused this unusual situation, which finds their stocks of semifinished steel still subnormal. Open-market requirements are also strong and small nonintegrated makers of strip, sheets, pipe, and wire nails have been active buyers of semifinished. The third-quarter price schedule is holding firmly.

Coke By-Products

Coke By-Product Prices, Page 69

New York—Demand for coke by-products continues uniformly heavy, with that for toluol and industrial zylol particularly pressing. Prices are firm and unchanged.

Metallurgical Coke

Coke Prices, Page 69

Beehive coke shipments from western Pennsylvania ovens continue to increase, which is a distinctly contraseasonal movement, but is based mainly upon demand from blast furnace operators. The market on standard furnace coke for metallurgical purposes is $3.30 to $3.65, f.o.b. Connellsville, Pa., ovens. On the same basis, common foundry coke is $4.25 to $4.50 per ton and premium foundry coke, $5.50.

Foundries are taking somewhat less tonnage than earlier and July shipments show some shrinkage, although not to a marked extent. Prices have been extended for third quarter in all districts.

Steel in Europe

Foreign Steel Prices, Page 72

London—(*By Radio*) — A second giant Transatlantic liner, sister ship of QUEEN MARY, has been let definitely to John Brown & Co., Clydebank, Scotland. British steel and iron markets are quieter on account of the summer holiday season now under way. Steelworks in Scotland are generally well booked. Some business is said to have been offered for 1937 delivery but makers refuse to make commitments beyond the end of 1936. Dorman, Long & Co. Ltd., have booked an order for bridges for export to China.

The Continent reports export trade increasing. French domestic prices have been increased 30 to 70 francs per ton as a result of recent changes in labor costs.

Quicksilver

New York — A firmer undertone has developed in quicksilver although prices so far are unchanged, small lots of 15 to 25 flasks commanding $74 to $74.50 per 76-pound flask while round lots of 100 flasks are quoted $73.25 per flask. The revolt in Spain has deprived the world market of one of its chief sources of supply and unless the situation is cleared soon an advance in prices is anticipated.

British Pig Iron Enters

Philadelphia—More than 3000 tons of foreign pig iron arrived here during the week ended July 25, including 2011 tons from British India and 1000 tons from England.

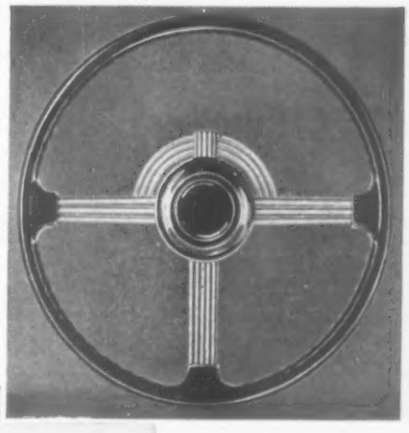
Importations also included 125 tons of ferromanganese from Norway and 43 tons of manganese ore from Brazil, 29 tons of steel tubes from Sweden and 130 tons of steel bars from Belgium, 11 tons from Sweden, six tons from France and four tons from Germany.

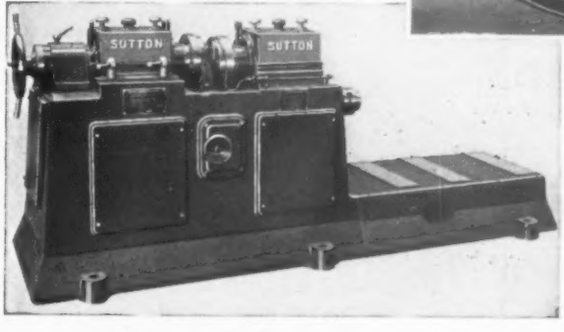
Also included were 42 tons of dia-

The new type Chrysler steering wheel shown at the right is not only unique in design but it presents a difficult polishing and burnishing problem.

The No. 00 Sutton Disc Type Burnishing and Surface Rolling machine seen below successfully met the requirement. It polishes and burnishes in one operation by spinning the spokes between two hardened discs. No emery belt is used.

This is the only machine of its kind on the market. Write for details.





Other Sutton machines are:

Round Straighteners, Flat and Shape Straighteners, Gag Presses, Two-Way Flat and Shape Straighteners, Mechanical Hammers, Sheet Flatteners, Bar Stretchers and Cooling Beds, Backed up Sheet Flatteners.

SUTTON ENGINEERING CO.

Offices:
PARK BUILDING
PITTSBURGH

Works:
BELLEFONTE, PA.

mond plates, 40 tons of structural shapes and five tons of steel hoops from Belgium; 12 tons of structural shapes from Germany and 89 tons from France. Two tons of steel bands came in from France, one ton from Germany and four tons from Belgium.

Nonferrous Metals

Nonferrous Metal Prices, Page 70

New York — Sentiment in the nonferrous metal markets was cheerful last week on continued active consumption. The usual seasonal recession is lacking. Prices with the exception of tin held unchanged.

Copper—All leading sellers quoted the higher levels reached during the previous week on the basis of 9.75c, Connecticut, for electrolytic. Total sales for July are expected to be over 175,000 tons, the largest volume on record for any single month. Year-end prices of 10.00c, Connecticut, are still foreseen.

Lead — Lead maintained its steady price tone at 4.45c, East St. Louis, with buying fair for August and September requirements. Users' September needs have been barely touched so far.

Zinc — Sales were small and routine but prices held firm at 4.80c, East St. Louis. A favorable market development was the advance in London prices with hopes renewed that negotiations will be resumed for the formation of a zinc cartel abroad some time in September.

Tin — The Straits tin market was unsettled due to conflicting reports concerning negotiations with Siam for renewal of the tin restriction scheme. The final outcome of these negotiations may not be known until well toward the close of the year, so further fluctuations are expected in prices. Straits spot closed around 42.75c.

Antimony—Prices held unchanged in a generally quiet market. Chinese spot was nominally 13.00c, duty paid New York, while American spot held at 11.37½c, New York.

Over 5,000,000 Inspections In Air-Conditioning Week

As a feature of National Warm Air Heating and Air Conditioning week, Aug. 17-22, 15,000 dealers in co-operation with leading manufacturers of warm air furnaces and air conditioning equipment, have organized to check up and inspect over 5,000,000 heating plants throughout the United States.

In making this announcement, M. H. Friedman, Chicago, who is directing the week, said:

"The free check-up and inspection plan is for one purpose—to assure safer, more economical and better heating during the 1936-37 winter heating season. By a check-up it is hoped the heating system operator will make a number of minor repairs, reducing fire hazard."

The inspection also will make it possible to show the home owner how his present heating system may be converted into a complete or partial air conditioning system.

SHOOP

LEADERSHIP

1911 for 25 YEARS 1936

BRONZE • BRASS • ALUMINUM

CASTINGS

ALSO MILL BEARINGS
BUSHINGS • ANTI-ACID METAL
HYDRAULIC PUMP WORK
PICKLE CRATES

THE SHOOP BRONZE CO.
344-360 W. Sixth Ave. Bell Phone 371
TARENTUM, PA. (PITTSBURGH DISTRICT)

G. E. Pension Pays Well

Since employe pensions were established by General Electric Co., Schenectady, N. Y., in 1912, a total of more than $15,600,000 has been paid to beneficiaries, the company announces.

A company pension trust of more than $26,000,000 provides funds, with an additional trust of $7,300,000 from employe contributions, known as the additional pension fund. Payments for pensions in all departments now total $2,589,000 per year. After 20 years service male employes may retire at 65 years.

Equipment

Chicago — Machinery and equipment sales retain an even and active rate. July business held closely to the June volume, and there is no indication of an early slackening in demand. Machine tool sales last month about equaled those of June. Small tool demand, instead of declining seasonally the past 30 days, was a stand-off from that of the preceding month. Machine tool inquiries are holding well, and in view of the promptness with which buyers are closing, sales are expected to be sustained for at least the next several weeks. Railroad participation in tool buying still is light despite recent improvement.

Seattle — Industrial demand for machinery and equipment, both new and used, is well maintained throughout the district. Alaska requirements are above normal, additional cannery supplies having been bought by fish packers recently. Mining activity is calling for usual equipment while sawmill and logging operations are swelling the total. Road contractors have been important buyers.

Pittsburgh — Pittsburgh Lectromelt Furnace Corp. here, is now building a 5-ton top-charge electric furnace for the Industrial Steel Castings Co., Toledo, O. The latter company is spending approximately $130,000 for expansion of its furnace division, including installation of new equipment. International Nickel Co., which already has five electric furnaces at its Huntington, W. Va., division, recently announced that it would add increased melting capacity at that works.

In the market for heavy steel mill equipment, some preliminary interest is centering around the plans of Follansbee Bros. Co. under its reorganization, which awaits approval, to install a hot strip mill which, with other expansion, would involve expenditure of about $5,000,000.

Construction and Enterprise

Ohio

CLEVELAND—City department of light and power, City hall, asks bids until Aug. 7 for furnishing a distribution transformer.

CLEVELAND—Standard Oil Co., Midland building, proposes to spend $5,500 for construction of an addition to its pumphouse at 3260 East Sixty-fifth street.

CLEVELAND—W. J. Schoenberger Co., W. J. Schoenberger, president, 8810 Harvard avenue, plans to spend approximately $35,000 for additions to the factory, where valves and gas cocks are made, and to the boilerhouse. May purchase some new equipment.

COLUMBUS, O.—Banner Die Tool & Stamping Co., 1288 Holly street, plans to construct a 1-story, 60 x 80-foot, addition to its factory.

COLUMBUS, O.—Capitol Mfg. & Supply Co., maker of pipe fittings, 520 East Wager street, proposes to spend $4500 for an addition to the factory.

DAYTON, O.—Air corps, contracting officer, Wright field, asks bids until Aug. 7 for furnishing an electric moulder, circular 37-47.

DAYTON, O.—Mayor F. O. Eichlberger plans to construct a booster station for the water works near Abbey avenue.

DAYTON, O.—Egry Register Co., Milton C. Stern, vice president and plant manager, 417 East Monument avenue, has plans that may mature soon for construction of a factory addition.

DAYTON, O.—Wright field, materiel division, contracting officer, asks bids until Aug. 13 for furnishing 30 wire-tying machines and 95⅝-inch capacity bolt clippers, circular 35.

DEFIANCE, O.—Arnold Haviland Co., Jackson avenue, maker of metal stampings, has acquired land adjoining plant and proposes to construct a building containing 10,000 square feet of floor space.

DEFIANCE, O.—F. Serrick Inc. and Defiance Screw Machine Products Co., makers of automotive parts, have been merged. Mr. Serrick controls the new company.

DELPHOS, O.—City service director, A. E. Weger and Carl Simon, Van Wert, consulting engineers, are preparing plans and estimates on steam and diesel types of municipal power and light plants. (Noted STEEL July 13).

LIMA, O.—Davidson Porcelain Enamel Co. is completing plans for construction of a plant addition.

MANSFIELD, O.—Mansfield Metal Building Co. has been organized and plans to purchase equipment to manufacture all types of metal buildings. P. G. Renie is president, and B. A. Whinger, secretary-treasurer.

MORRISTOWN, O.—Village has approved a bond issue for a waterworks partially financed with federal funds, the total cost being $40,000. Plans include installation of deep well pumping equipment. William Herbert, St. Clairsville, O., is civil engineer, and Rollin F. MacDowell, Chester-Twelfth building, Cleveland, is associate consulting engineer.

MT. VICTORY, O.—Village board of public affairs, Leonard Cox, clerk, will advertise soon for bids on a pumphouse. Bids received Dec. 10 were rejected. Carl Simon, Van Wert, O., is consulting engineer.

NEWTON FALLS, O.—Village board of public affairs, Dana M. Bailey Jr., mayor, will ask bids about Aug. 10 for $165,000 worth of improvements in the light plant and distribution system. Bryan & Sigmon Engineering Co., Box 111, Newton Falls, is consulting engineer. (Noted STEEL July 13).

PAYNE, O.—Village clerk, Dorr S. Elick, proposes to purchase an electrically operated deep well turbine pump having a capacity of 200 gallons per minute. Cost is to be about $1000.

TOLEDO, O.—Great Lakes Foundry & Machine Corp. has been organized with capital of $20,000 to operate a foundry and machine shop. E. H. Forster, G. N. Dederich and Stanley J. Hiett, 402 Home Bank building, are the principals.

TROY, O. — City service director, George Smith, accepts bids until noon, Aug. 6, for furnishing a water tube steam boiler, a multiple retort underfeed mechanical stoker and an ash hopper for use in the light plant. Froelich & Emery, Second National Bank building, Toledo, O., is engineer.

WARREN, O.—Allied Metals Inc., with capital of $5000 has been organized to

SAFETY

(TRADE MARK REGISTERED)

NEVER SAFE

STEEL STAMPS

(PAT. RE 17846)

ALWAYS SAFE

Will Not Mushroom nor Spall

50% More Service

BOTH STAMPS ILLUSTRATED MADE 18,000 IMPRESSIONS ON THE SAME STAMPING JOB.

Which do you want in your shop?

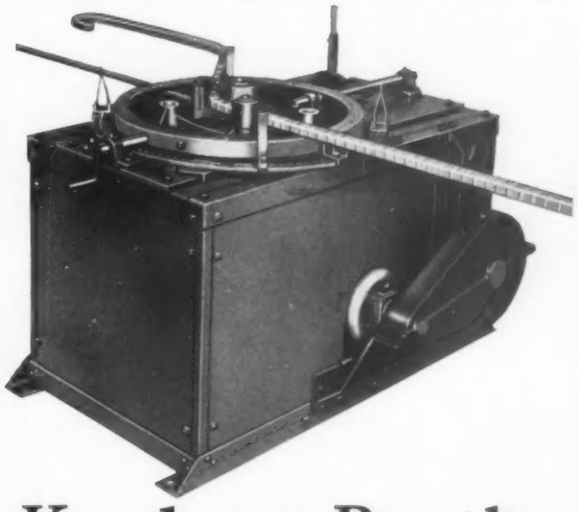
LETTER & FIGURE SETS ROLLER DIES
INSPECTOR HAMMERS TYPE & HOLDERS
HAND & PNEUMATIC CHISELS
ALL TYPES OF STEEL DIES FOR HAND OR POWER OPERATION

M. E. CUNNINGHAM COMPANY

EAST CARSON STREET PITTSBURGH, PA.

Kardong Four-way Bender

Model D-2



The Model D-2 Kardong Four-way Bender was designed because of the popular demand for this type of Bender.
In the bending of large bars they do not have to be turned over to make the reverse second bends and in the 180 degree hook bars, after making the first hook the bending member is in position to make second hook by just switching resistance roller to opposite side.
The resistance roller plates are adjustable. The same construction is carried thru on this machine as in all of our benders and is guaranteed to give absolute satisfaction. Ask for catalogue of our complete line of reinforcing steel bar benders.

Kardong Brothers, Inc.

Minneapolis, Minn.

manufacture and deal in metal products by Chester A. Garber, 324 Harris building, Dayton, O.; David R. Feemster and Herbert A. Bell.

WICKLIFFE, O.—Youngstown Steel Door Co., Meridian road, Youngstown, O., expects to have plans ready soon for extension to a building here.

Michigan

ANN ARBOR, MICH.—Detroit Edison Co., Detroit, plans to construct a $50,000 power substation here.

BATTLE CREEK, MICH. — Kalamazoo Stove Co., H. C. Buechner, purchasing agent, 164 Rochester street, has begun to operate the foundry of the A-B Stove Co., here, idle since 1929. J. C. Devol is purchasing agent for the A-B company.

DEARBORN, MICH.—Ford Motor Co., Schaefer road, plans to install wire pickling equipment and switch gear equipment for its foundry. Giffels & Vallet Inc., 606 Marquette building, is architect.

DETROIT—Star Tool & Die Co., 2520 Twenty-fourth street, has let contract to W. J. C. Kaufman Co. to construct an addition to its plant.

DETROIT—Hygiene Equipment Co. has been incorporated by June C. Nebe, 13848 Grand River avenue, to manufacture septic tanks.

DETROIT—W. A. Pirdham Co. Inc. has been incorporated by W. A. Pirdham, 11630 Ohio avenue, to manufacture roller skates.

DETROIT — Kelsey-Hayes Wheel Co., 3600 Military road, is asking bids through Giffels & Vallet Inc., architects, 606 Marquette building, for additions to its power house and alterations to foundry.

DETROIT — Detroit Forging Co., 3564 Toledo avenue, contemplates construction of forge, die, and press shops. E. R. Seibert is purchasing agent for the company in this $25,000 project.

GRAND HAVEN, MICH.—City proposes to make additions to the light plant. Hamilton & Weaver is engineer.

HOLLAND, MICH.—Holland Furnace Co. has under way plans for construction of a 1-story addition to cost $40,000 with equipment and is considering construction of a second 1-story unit.

PONTIAC, MICH.—General Motors Truck Co., 2925 Vermont street, Detroit, plans to construct a new factory at the Fisher body plant and install conveyors, motors, controls and other equipment at a total cost of $450,000. Albert Kahn Inc., New Center building, is architect and engineer.

Illinois

CHICAGO—Just Mfg. Co., 4620 West Twenty-first street, has been incorporated by Htayas Just, A. Gepert and R. J. Rodier to manufacture steel sinks and metal cabinets. H. F. Antes, 160 North LaSalle street, is correspondent.

Indiana

BICKNELL, IND.—City has PWA allotment of $19,937 for waterworks improvements, including installation of new pumps.

FT. WAYNE, IND.—Briggs Indiana Corp., builder of automobile bodies, plans to construct an addition on Columbia street for the metal shop. C. C. Taylor is comptroller.

FREMONT, IND.—Town has been granted a PWA allotment of $24,545 to help finance construction of a new waterworks system, including the purchase of a turbine type vertical deep well pump and 50,000-gallon elevated steel tank.

INDIANAPOLIS—Amor-Grimes Furnace Co. Inc. has been formed with offices at 618 Massachusetts avenue to deal in air conditioning systems.

INDIANAPOLIS—Trailer Corp. of America, 155 East Market street, has been granted a state charter to manufacture trailers. Edward Lustgarten, same address; Robert A. Goetcheus, and Millard D. Huch are the principals.

INDIANAPOLIS—Board of trustees, Indiana university, T. H. Cookson, assistant secretary, will accept bids until 11 a. m., Aug. 11, at Claypool hotel for furnishing a turbine generator for a new medical building at Bloomington, Ind.

MISHAWAKA, IND.—Johnson Forge & Machine Co., near Jefferson and Fir roads, plans to erect a steel addition to the plant where drop forgings and automobile and electrical equipment is manufactured. Alfred Johnson is president.

PORTLAND, IND.—City has been granted a PWA allotment of $87,000 to help finance construction of a $193,000 addition to municipal light plant and installation of a 3000-kilowatt turbogenerator, condensers and accessories.

SOUTH BEND, IND.—Andrew Troeger Sheet Metal Works Inc., 511 East Jefferson street, has been formed to engage in sheet metal business. Earl E. Troeger is resident agent.

Pennsylvania

BESSEMER, PA.—Borough secretary, Charles N. Nord, is taking new bids due Aug. 12 (bids received July 8, rejected) for furnishing two electric motor driven deep well turbine pumping units. Thomas A. Gilkey, Greer building, New Castle, Pa., is consulting engineer. (Noted STEEL June 22).

CANONSBURG, PA.—Keystone Gas Co.'s large compressor in Chartiers township, near here, was damaged by fire July 21.

CONNEAUTVILLE, PA.—E. C. Ward is in the market for a 15-horsepower steam engine.

CONSHOHOCKEN, PA.—Alan Wood Steel Co. plans to spend $45,000 for an addition to the plant of Schuylkill Iron works.

DURYEA, PA. — Pittsburgh-Duryea Coal Co. is in the market for 6 electric pumps for coal mines.

FREDERICKTOWN, PA.—School board secretary of East Bethlehem township, Charles S. Seaton, will receive bids until Aug. 14 for furnishing an auxiliary lighting system for the high school.

HARRISBURG, PA.—Central Iron & Steel Co. is contemplating erection of an addition to its plant on Front street at an estimated cost of $40,000.

KNOX, PA.—Two men, Walter S. Borland, 163 East Bissell avenue, Oil City, Pa.; and Claude Slicker, Knox, have acquired an oilfield east of Titusville, Pa., and will install gas engines, air compressors, pipe, and other equipment at a cost of $30,000.

MYERSTOWN, PA.—Borough has been granted a PWA allotment of $68,715 to help finance construction of a $152,700 municipal power plant and distribution system . Three 300-horsepower diesel electric generating units and other equipment is to be purchased.

OIL CITY, PA.—Continental Refining Co. proposes to install electric pumping machinery, conveyors and motors and controls in an expansion and improvement of the local refinery at a cost of $100,000.

PHILADELPHIA—Albion Engineering Co., 1572 Adams avenue, plans acquisition or construction of a plant costing $45,000.

PITTSBURGH—Waverly Oil Co., S.

FREE BOTH HANDS WITH
FOOT OPERATED AIR CONTROL

Also, free processing of delays, shutdowns, repairs—Q. A. W. is NOT an ordinary valve—Gives, literally, millions of operations working perfectly—and, highly important all Q. A. W. Valves are

GUARANTEED LEAK-PROOF

Ask for Engineers' Data Catalog "S"

Typical View Q. A. W. Foot Operated Air Control Valve. Removable without disturbing piping.

Quick-As-Wink Control

FOR AIR VALVES FOR WATER

C.B. HUNT & SON - SALEM, OHIO
DISTRIBUTORS IN PRINCIPAL CITIES

Representative in England: Gaston E. Marbaix, Ltd., London.

M. Cockel, president, Fifty-fourth street, has engaged Rust Engineering Co., Clark building, to construct a power plant, in addition to an oil refinery and dewaxing plant.

READING, PA.—Carpenter Steel Co. has secured permits to construct additional buildings costing $47,000 and $57,000. The buildings will be equipped with machinery.

WEATHERLY, PA.—Borough has been granted a PWA allotment of $14,727 to help finance construction of a $32,727 addition to the municipal power and light plant, including installation of a new 300-horsepower boiler and stoker.

New Jersey

BOUND BROOK, N. J.—Borough has been granted a PWA allotment of $108,000 to help finance construction of $240,000 pumping stations. Sludge pumps are to be purchased.

NEWARK, N. J.—Eric Johnson Forging Works, 293 Thomas street, was damaged by fire recently.

SOUTH RIVER, N. J.—Borough has been granted a PWA allotment of $63,000 to help finance construction of a $140,000 pumping station and other improvements in the sewage disposal plant.

New York

BUFFALO—Farnham Mfg. Co., 36 Indiana street, has leased the International Railway Co. building at Seneca and Elk streets. The new plant provides increased space for the manufacture of elevating and conveying equipment.

KINGS PARK, N. Y.—Department of mental hygiene, State Office building, Albany, N. Y., will take bids until Aug. 19 for construction of a water supply system at the Kings Park hospital. T. F. Farrell is chief engineer.

NEW YORK — Freeman-Mills Inc., Queensborough, has been incorporated with capital of $20,000 to manufacture boilers and hot water equipment.

NEW YORK—Morgan & Martin Inc. has been incorporated to manufacture pumps, meters and other equipment for the oil industry. Williams & Sawyer, 1206 Liberty Bank building, Buffalo, is correspondent.

SIDNEY, N. Y.—Scintilla Magnetic Co., subsidiary of Bendix Aviation Corp., Chicago, plans to construct this fall an addition to the plant at a cost of $37,000.

Massachusetts

ROCKLAND, MASS. — Town has been granted a PWA allotment of $46,350 to help finance construction of a $103,000 waterworks addition that includes purchase of a 1,000,000-gallon elevated steel tank.

District of Columbia

WASHINGTON — Panama Canal, general purchasing officer, asks bids for a metalworking machine and other supplies.

WASHINGTON — Navy department, bureau of supplies and accounts, asks bids until Aug. 4 for furnishing 1 diesel-engine-driven oil pump delivered at Philadelphia, schedule 8454; miscellaneous hydraulic, motor pump units delivered at Philadelphia, schedule 8471; and until Aug. 7 for 1 motor driven portable woodworking machine delivered at Philadelphia, schedule 8505; miscellaneous electric arc welding sets delivered at Brooklyn, N. Y., schedue 8472; and 1 power operated bending machine delivered Ostrich Bay, Wash., schedule 8473; and until Aug. 11 for 1 horizontal universal milling machine delivered at Thorne, Nev., schedule 8464; and miscellaneous high speed steel twist drills delivered at San Diego, Calif., schedule 8467.

Missouri

SAVERTON, MO.—Acting district engineer, Lt. Col. E. E. Gesler, United States war department, Clock Tower building, Rock Island, Ill., will take bids Aug. 18 for furnishing a locomotive crane and other equipment and for construction of a dam in the Mississippi river.

Arkansas

TURREL, ARK.—Town has been granted a PWA allotment of $11,045 to help finance a proposed $24,545 waterworks construction. A multiple stage turbine type electrically driven pump and a 50,000-gallon elevated steel tank will be furnished.

Oklahoma

CHANDLER, OKLA. — City has

(*Please turn to Page* 93)

1892 **PIONEERS** 1936

IN

Blast Furnace Copper Castings

Mill Bearings—Machinery Bronze Housing Nuts

Heavy Closed Bottom Tuyere Cocks

IF

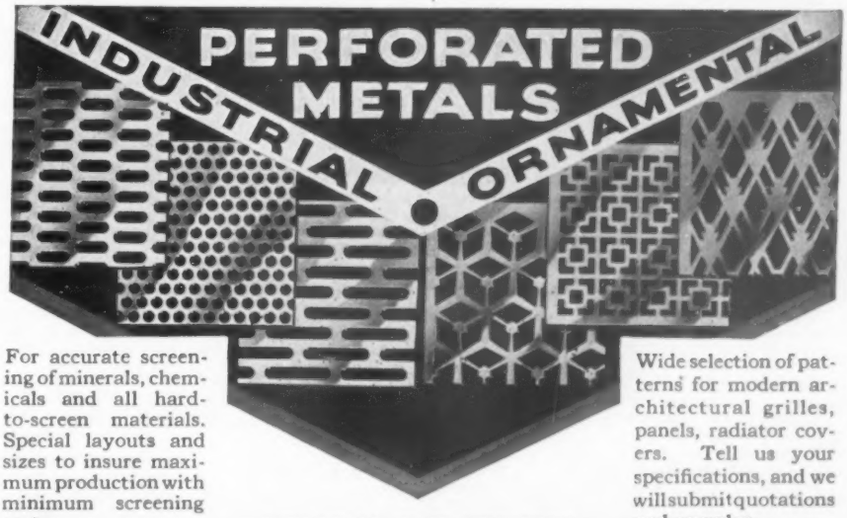
Quality and Service

Are Factors in Your Buying

Let Us Quote

LAWRENCEVILLE BRONZE CO.

Bessemer Bldg. Pittsburgh, Pa.



For accurate screening of minerals, chemicals and all hard-to-screen materials. Special layouts and sizes to insure maximum production with minimum screening costs.

Wide selection of patterns for modern architectural grilles, panels, radiator covers. Tell us your specifications, and we will submit quotations and samples.

ANY METAL OR PERFORATION

The Harrington & King PERFORATING Co.

5634 FILLMORE STREET—CHICAGO, ILL.

New York Office, 114 Liberty Street

WHERE-TO-BUY

A classified list of advertisers according to products. ¶Index to advertisements gives page number of any advertiser.

ABRASIVES (Polishing)
Carborundum Co., The, Niagara Falls, N. Y.
Norton Co., Worcester, Mass.

ABRASIVES (Wire Cleaning)
Industrial Silica Corp., 602 Stambaugh Bldg., Youngstown, O.

ACCUMULATORS
Morgan Engineering Co., The, Alliance, O.

ACETYLENE
Air Reduction Sales Co., 60 East 42nd St., New York City.
Linde Air Products Co., 30 E. 42nd St., New York City.

ACID-PROOF LININGS
Ceilcote Co., The, Rockefeller Bldg., Cleveland, O.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

AIR CONDITIONING EQUIPMENT
Ross, J. O., Engineering Co., 350 Madison Ave., New York City.
Worthington Pump & Machinery Corp., Harrison, N. J.

ALLOYS—See FERROALLOYS

ANGLES, CHANNELS—See BEAMS, CHANNELS, ANGLES

ANGLE IRON BENDERS
Excelsior Tool & Machine Co., Ridge and Jefferson Aves., East St. Louis, Ill.

ANNEALING BOXES—See Boxes (Annealing)

ANODES (All Types)
The Udylite Co., 1615 E. Grand Blvd., Detroit, Mich.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Corp., San Francisco, Calif.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Republic Steel Corp., Dept. ST, Cleveland, O.
Standard Steel Works Co., Burnham, Pa.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2815 Smallman St., Pittsburgh, Pa.
Falcon Bronze Co., Youngstown, O.
National Bearing Metals Corp., 928 Shore Ave., Pittsburgh, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BALL TRANSFERS
Mathews Conveyer Co., Ellwood City, Pa.

BANDS—See HOOPS AND BANDS

BANDS (Iron and Steel)
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Co., San Francisco, Calif.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
Republic Steel Corp., Dept. ST, Cleveland, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
The Stanley Works, New Britain, Conn. Bridgeport, Conn.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., Frick Bldg., Pittsburgh, Pa.
Bethlehem Steel Co., Bethlehem, Pa.
Federal Shipbuilding & Dry Dock Co., Kearney, N. J.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.

BARRELS (Plating)
The Udylite Co., 1615 E. Grand Blvd., Detroit, Mich.

BARRELS (Steel)
Petroleum Iron Works Co., Sharon, Pa.
Pressed Steel Tank Co., Milwaukee, Wis.

BARS (Alloy)
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Co., San Francisco, Calif.
Firth-Sterling Steel Co., McKeesport, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Republic Steel Corp., Dept. ST, Cleveland, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Timken Steel & Tube Co., Canton, O.

BARS (Concrete Reinforcing)
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Co., San Francisco, Calif.
Inland Steel Co., 38 S. Dearborn St., Chicago, Ill.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Republic Steel Corp., Dept. ST, Cleveland, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS (Iron)—See IRON (Bar)

BARS (Reinforcing)
Foster, L. B., Co., Inc., P. O. Box 1647, Pittsburgh, Pa.

BARS (Steel)
(*Also Stainless)
*Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Co., San Francisco, Calif.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
*Jessop Steel Co., Washington, Pa.
Jones & Laughlin Steel Corp., Jones & Laughlin Bldg., Pittsburgh, Pa.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
*Ludlum Steel Co., Watervliet, N. Y.
*Midvale Co., The, Nicetown, Philadelphia, Pa.
*Republic Steel Corp., Dept. ST, Cleveland, O.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
The Stanley Works, New Britain, Conn. Bridgeport, Conn.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Timken Roller Bearing Co., The, Canton, O.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

BATTERIES (Storage)
Edison, Thomas A., Inc. Orange, N. J.
Electric Storage Battery Co., The, 19th St. & Allegheny, Ave., Philadelphia, Po.

BEAMS, CHANNELS, ANGLES, ETC.
(*Also Stainless)
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie-Illinois Steel Corp., Pittsburgh-Chicago.
Columbia Steel Co., San Francisco, Calif.
Inland Steel Co., 38 So. Dearborn St., Chicago, Ill.
*Jessop Steel Co., Washington, Pa.
*Ludlum Steel Co., Watervliet, N. Y.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., Brown Marx Bldg., Birmingham, Ala.
Weirton Steel Co., Weirton, W. Va.
Youngstown Sheet & Tube Co., Youngstown, O.

BEARINGS (Ball)
Bantam Ball Bearing Co., The, South Bend, Ind.
Boston Gear Works, Inc., North Quincy, Mass.
Fafnir Bearing Co., New Britain, Conn.
Norma Hoffmann Bearings Corp., Stamford, Conn.
New Departure Mfg. Co., Bristol, Conn.

BEARINGS (Bronze)
Shoop Bronze Co., The, 344-360 W. Sixth St., Tarentum, Pa.
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Cramp Brass & Iron Foundries Co., Paschall Sts., Philadelphia, Pa.
Falcon Bronze Co., Youngstown, O.
Lawrenceville Bronze Co., Bessemer Bldg., Pittsburgh, Pa.
National Bearing Metals Corp., 928 Shore Ave., Pittsburgh, Pa.
Shenango-Penn Mold Co., Dover, O.

BEARINGS (Journal)
Bantam Ball Bearing Co., The, South Bend, Ind.
Fafnir Bearing Co., New Britain, Conn.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
Link-Belt Co., 300 W. Pershing Rd., Chicago, Ill.
National Bearing Metals Corp., 928 Shore Ave., Pittsburgh, Pa.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Oilless)
Richardson Co., The, Lockland, Cincinnati, O.

BEARINGS (Radial)
Bantam Ball Bearing Co., South Bend, Ind.
Fafnir Bearing Co., New Britain, Conn.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
New Departure Mfg. Co., Bristol, Conn.
Timken Roller Bearing Co., Canton, O.

Bearings (Roll Neck)
Bantam Ball Bearing Co., The, South Bend, Ind.
Fafnir Bearing Co., New Britain, Conn.
Falcon Bronze Co., Youngstown, O.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
National Bearing Metals Corp., 928 Shore Ave., Pittsburgh, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Timken Roller Bearing Co., Canton, O.

BEARINGS (Roller)
Bantam Ball Bearing Co., The, South Bend, Ind.
Fafnir Bearing Co., New Britain, Conn.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
Norma Hoffmann Bearings Corp., Stamford, Conn.
S K F Industries, Inc., Front St. & Erie Ave., Philadelphia, Pa.
Timken Roller Bearing Co., The, Canton, O.

BEARINGS (Roller Tapered)
Bantam Ball Bearing Co., South Bend, Ind.
Timken Roller Bearing Co., Canton, O.

BEARINGS (Rolling Mill)
Bantam Ball Bearing Co., South Bend, Ind.
Cramp Brass & Iron Foundries Co., Paschall Sts., Philadelphia, Pa.
Falcon Bronze Co., Youngstown, O.
Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.
Lawrenceville Bronze Co., Bessemer Bldg., Pittsburgh, Pa.
Norma Hoffmann Bearings Corp., Stamford, Conn.
Shoop Bronze Co., The, 344-360 W. Sixth St., Tarentum, Pa.
Timken Roller Bearing Co., Canton, O.

BEARINGS (Quill)
Bantam Ball Bearing Co., South Bend, Ind.